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 ON WEDNESDAY, 16TH JANUARY, 1884.

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"LANCET,"

March 3rd, 1883, p. 369.

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"THE BRIT. MED. JOURNAL,"

July 21, 1883, p. 121.

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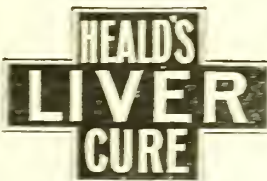
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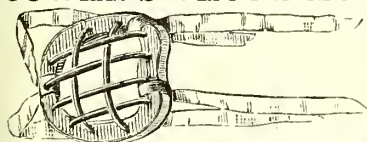
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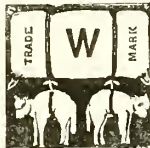
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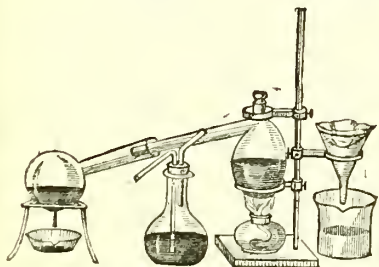
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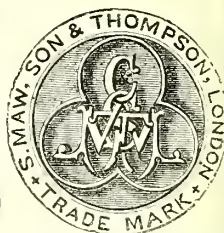
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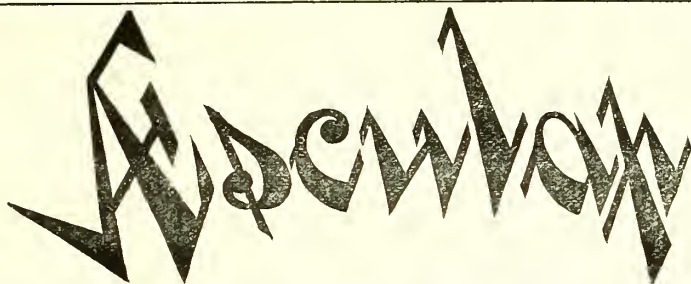
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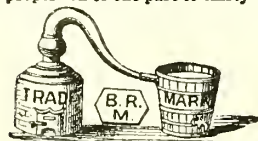
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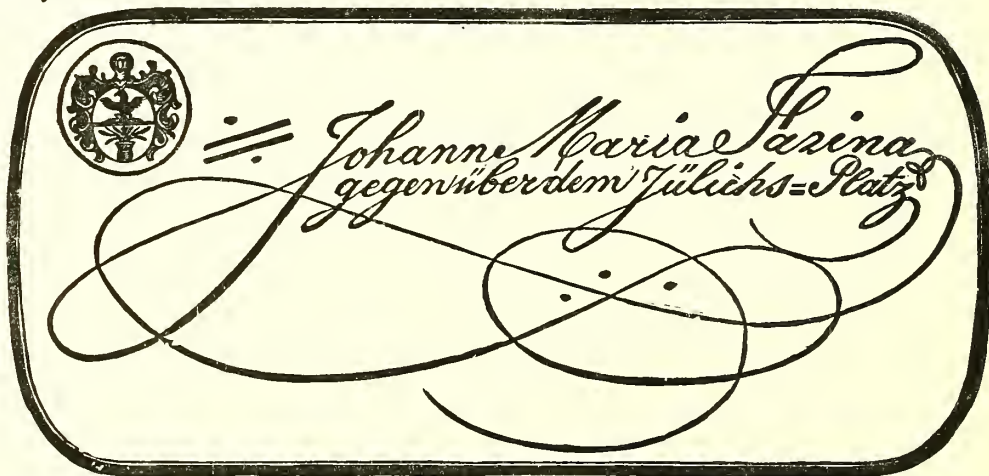
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IS KNOWN THROUGHOUT THE WORLD AS

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In 2 oz. Bottles.

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In reputed $\frac{1}{2}$ -Pint, Wickered.

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By Special Appointment to the Prince of Wales and to several Imperial and Royal Courts.

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CORN AND BUNION PLASTERS.

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Thin, 12 in box (round 6d. boxes)	...	2/4 per doz. boxes.
Thick, 12 in box (original 1s. fancy boxes)	3/4	"
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In our Patent Crown Stoppered Bottles, or with Sprinkler Tops, 16/, 20/, 28/, 48/, and 84/ per doz.

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OPALINE CREAM, the Finest Preparation made, for the Hands, Arms, and Neck, 24/ per dozen bottles.

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FOSSILINE

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Richly Perfumed, and guaranteed to contain the necessary quantity of GLYCERINE for effectually imparting to the SKIN the softening and healing properties for which it is so justly famed. 1s. 6d. Boxes of Three Tablets, 12s. per Dozen Boxes.

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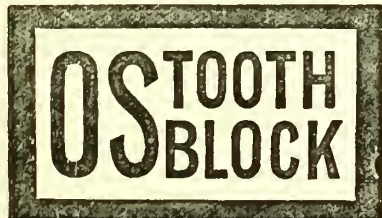
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PRINTED MATTER AND TERMS SENT ON APPLICATION.

price 8/ per gross, packed in 1-gross and 1-gross boxes.

KITSON'S BACON MAKER
PROMOTES HEALTH REMOVES DISEASE
THRIVING POWDER FOR PIGS
SOLD ONLY IN PENNY PACKETS BY THE MANUFACTURER
E. J. KITSON, CHEMIST, WORCESTER

LONDON WHOLESALE AGENTS, MAY, ROBERTS & Co., 9 CLERKENWELL RD.

FOSTER'S PEARL-COATED ROUP PILL

Retail, 2d., 6d., 1s., and 2s. per box.

These Pills have found great favour wherever introduced, being a successful remedy for this troublesome complaint, the price, 2d., placing them within reach of the poorest keeper of Poultry, supplying a want long in demand, the high prices usually charged precluding all but the well-to-do fancier.

An Agent wanted in every town. Sample dozen of the 2d. size, post free, 1s. 6d. Agents' Addresses periodically advertised in their local papers, thus bringing them directly before the notice of consumers in their neighbourhood. Send copy of Newspaper, with order (however small), and an Advertisement shall be inserted, as, when known, they sell well.

Foster's Poultry Ointment for Scaly Leg; Foster's Poultry Powder, for Cramp; Foster's Poultry Pills for Condition, retail 1/- per box.

Wholesale Agents—London: Evans, Leecher & Webb, 60 Bartholomew Close; Lynch & Co., Aldersgate Street; W. Edwards & Son, 137 Queen Victoria St., E.C.; Wyleys & Co., 223 Upper Thames Street, and Coventry. Birmingham: Southall Bros. & Barclay. Manchester: Whitehead, Hulbrook & Co. (successors to W. Mather). Liverpool: Evans, Sons & Co. Montreal, Canada: H. Sugden Evans & Co. PROPRIETOR:

F. F. FOSTER, Navigation Street, BIRMINGHAM.

SPRATTS PATENT DOG MEDICINES AND SOAP. TASTELESS APERIENT BISCUIT FOR DOGS.

be Field, 28th January, 1882, says:—"The satisfactory results we obtained leave no doubt in our mind as to the value of the invention."

"LOCURUM"

(PATENT)

CURES ALL KINDS OF CUTS, BRUISES, AND WOUNDS IN MAN AND ANIMALS.

"SPRATTS PATENT," Bermondsey, S.E., or order through your Wholesale House.

Wholesale Agents for the Soap and Dog Medicines:—Barclay & Sons; Sanger & Sons; Sutton & Co.; F. Newbery & Sons; Lynch Co.; R. Hovenden & Sons, London; Raimes & Co., Edinburgh, York, and Liverpool; Ravensdale Mill Co., Dublin; Woolley, Sons Co., Manchester; Taylor, Gibson & Co., Newcastle-on-Tyne; Goodall, Backhouse & Co., Leeds; and of all Wholesale Houses.

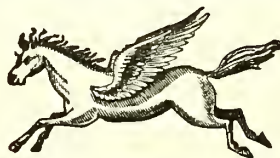
EDWIN HELLIAR, MANUFACTURING CHEMIST, YEOVIL,

to call the attention of the trade to the following specialties, which will be found worthy of a place in the stocks of all Chemists, and the your of an order, either direct or through the leading London Houses, will much oblige.

ly Tick and Lear Powder, for dressing Sheep and	
Lambs	in tins, 1/2, 3/6
oot Rot Paste .. .. .	.. .. . pots, 1/2, 2/6
ondition Powders for Horses .. .. .	.. .. . tins, 2/6, 4/6
anino or Dog Soap .. .. .	.. .. . .. 6d.
orm Powders for Dogs .. .. .	.. .. . .. 6d.
alsam Honey for Coughs .. .. .	.. .. . 7 1/2d., 1/1 1/2, 2/9
ermin Killer .. .. .	.. .. . 3d., 6d., 1/

ondon Wholesale Agents:—HOVENDEN & SONS, BARCLAY & SONS, SANGER & SON, W. EDWARDS & SON. Exeter:—EVANS, GADD & CO.

USUAL TERMS.



VESICO SUDORIFIC.

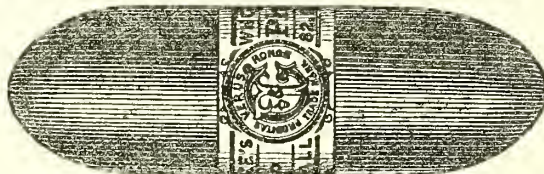
VESICO SUDORIFIC (Registered) will not blemish, but will, quicker than any other remedy, relieve and cure Splint, Spavin, Ringbone, Sidebone, Capped Hock, Curb, Windgall, and strengthen the legs of Horses. Also for Tumours in Cattle. Price, 2/6 size 24/ per doz.; 5/ size 48/ per doz., with usual discount. PROPRIETOR—

C. W. GREGORY, V.S., BRISTOL.

Wholesale Agents:—London—BARCLAY & SONS, EDWARDS & SON, SANGER & SONS; Liverpool—THOMSON; Edinburgh—RAIMES & Co.; Dublin—BOYD & GOODWIN; Cork—W. & H. M. GOULDING.

DRUGS, CHEMICALS, PHARMACEUTICAL PREPARATIONS.

GABRIEL & TROKE,

Wholesale and Export Druggists and Manufacturing Chemists,
82 CITY ROAD, LONDON.GABRIEL & TROKE'S
REGISTERED CAPSULED HORSE BALLS,Manufactured solely by GABRIEL & TROKE,
WHOLESALE DRUGGISTS, 82 CITY ROAD,
LONDON.MANUFACTURERS OF ALL VETERINARY PREPARATIONS, EVERY KIND OF
VETERINARY INSTRUMENTS AND SUNDRIES.
SAMPLES AND SPECIAL QUOTATIONS FOR LARGE BUYERS

The superior advantages of these Balls are obvious. The mass is confined in a hermetically sealed gelatinous Capsule, perfectly harmless, and immediately dissolved in the stomach. The Capsule will not only preserve the Ball from getting dry and hard, but will preserve its purity and power for any reasonable time, and ensure the effectiveness of the medicine—especially when such drugs as Camphor Ammonia, or Essential

Oils are prescribed. These Capsuled Balls are most convenient and safe and well adapted for export, keeping good in any climate. They are put up in Boxes of 1 dozen each. Capsuled Balls of the most approved formula on hand, and private recipes faithfully and accurately dispensed. Shipping orders promptly and carefully executed, and at lowest market prices. Price Lists of a very extensive character in the most handy referable style on application.

FIELDING'S CHEMICAL POULTRY FOOD OR NATURAL EGG PRODUCER
(REGISTERED),

WILL ENSURE PROFITABLE POULTRY KEEPING.

EGGS may be PRODUCED throughout the WINTER at 1s. per doz.

Chemists, Grocers, and Country Shop Keepers should at once lay in a stock.

Neatly packed in 2d. Packets, or 12 in a Box, 1/9.

Wholesale in Half-gross Glass-top Boxes	...	...	...	...	per gross	11/6 net
One gross	...	...	...	...	per gross	11/
1s. 9d. Boxes, each 12	...	...	...	...	per doz. Boxes	12/

S. MAW, SON & THOMPSON, Patent Medicine Houses,
Or J. H. CALVERT, 57 Geneva Road, Brixton, S.W., proprietor of Calvert's "Save your Bacon Pig Powders," a certain remedy for ailments to which swine are subject, especially "Swine Fever." Handbills and Show Cards Supplied.

"HUNTER'S" INFALLIBLE VERMIN DESTROYER

IS THE MOST DEADLY.

Cannot be excelled.

Thirty-seven years' reputation.

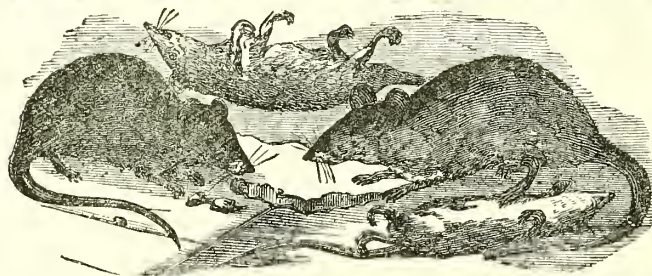


Always gives satisfaction.

SUPPLIED ON THE BEST TERMS
BY ALL THE WHOLESALE HOUSES.

Manufactory—DEWSBURY, ENGLAND.

BATTLE'S VERMIN KILLER. { Mice eat it readily, and Die on the spot.



Has an immense Sale, and wherever introduced never fails to give satisfaction.—Mice appear attracted to it as by magic, eat it readily, tumble over and die on the spot. Rate usually die in their runs.—Parties troubled with Vermin may be cleared at once, either from Stacks, Houses, or Ships.

TESTIMONIALS.—Thousands might be published.

From Mr. THOMAS COLTON, Agent for Selby.—A friend of mine purchased a Packet of your VERMIN KILLER last night, doubting its efficacy to-day he called in to say that he had found fifteen dead mice, and had only used part of a packet.—From Mr. EDWARD STURDY, Flemington Mills.—I duly received by post the Packet of your VERMIN KILLER, and found it as represented in your advertisement. It speedily destroyed all the mice in my granary. I enclose 2s. for two more Packets.—Leeds, November 6th 1887.—I have tried BATTLE'S VERMIN KILLER, and have found it most effectual in clearing my premises of LARGE QUANTITIES OF RATS.—THOMAS S. CROSLAND.—Mr. Sted.

Sold in Packets, 3d., 6d., and 1s. each.

SOLE PROPRIETOR:

Mr. J. R. BATTLE, Chemist, Lincoln, England.
No Chemist or Storekeeper should be without a supply.

RAT POISON.

"Among many preparations for killing Rats I have never found anything answer so well as that I obtained from

Messrs. SANFORD & SON, of Sandy, Bedfordshire.
From One Dressing I found 120 dead rats."—G. WINTER, Park Farm, Walden, Essex.

The Poison can be obtained in Boxes at 1s. (1s. 3d. with Postage) and upwards. Price to Chemists, 7s. per dozen on Sale or Return.

Wholesale of Messrs. BARCLAY & SON, Farringdon Street.

AFFINITAN,

The new Disinfectant, is better and cheaper than any other.

NO SMELL. NO STAIN.

POWERFULLY OXIDIZING.

Excellent terms to the trade. Sole Maker:

A. J. SHILTON, 40 Paradise St., Birmingham.

HORSE, CATTLE, AND SHEEP MEDICINES.

BY ROYAL APPOINTMENT.

**DAY, SON & HEWITT,**

INVENTORS AND SOLE PROPRIETORS OF THE

"ORIGINAL" STOCK BREEDERS' MEDICINE CHESTS.

For all Disorders in Horses, Cattle, Calves, Sheep, and Lambs.

Patronised for 50 years by Royalty, and the principal Stock Breeders, Horse Proprietors, and Agriculturists of the British Empire.

The No. 2 MEDICINE CHEST contains the following matchless remedies:—

"CHEMICAL EXTRACT," for all External Injuries, and Ewes Lambing.

"GASEOUS FLUID," for Colic, Scour, or Diarrhoea, and Debility.

"RED DRENCH," for Cleansing Cows and Ewes, and for Inflammation.

"RED PASTE BALLS," for Mares after Foaling, and Conditioning Horses.

"BRONCHOLINE," for Husk or Hoose in Sheep, Lambs, and Calves.

"GASEODYNE," for Heaving and Paining, "CARMINATIVE CHALK," &c.

Price of Chest, with Guide to Farriery, £2 16s. 6d. No. 1 Complete Medicine Chest, in Polished Case, £6 6s. Horsekeeper's Chest, No. 4, £2 17s. 6d.

CARRIAGE PAID TO ALL PARTS OF THE BRITISH ISLES.

Admirably adapted for all ordinary ailments among Stock, and each preparation can be had separately. Full and easy directions enclosed.

Awarded "Certificate of Merit" by the National Agricultural Society of Victoria, Australia, 1871; President's Medal, Spalding, 1872; Silver Medal, Manchester and Salford Show, 1874; Silver Medal, Preston, 1875; Silver Medal, Northamptonshire Agricultural Society, Stamford, 1875; Silver Medal, Crewe, 1875; Special Prize, National Agricultural Society of Victoria, Australia, 1875; Medal, Chester, 1876; Silver Medal, South African Exhibition, Cape Town, 1877; Silver Medal, Newcastle-on-Tyne, 1877; Silver Medal, Knutsford, 1878; Medal, North Berwick, 1878; Medal, Dairy Show, London, 1878; Silver Medal, Derby, 1879; Silver Medal, Wellingborough, 1879; Medal, Bentham, 1880; Medal, Melbourne Exhibition, 1880; Silver Medal, Stourbridge, 1881; Silver Medal, Doncaster, 1882; Gold Medal, Christchurch, New Zealand, 1882; and Silver Medal, Canterbury, 1882.

CAUTION.—Beware of Imitations, and see that the name of DAY, SON & HEWITT is on all Bottles and Packets.

Prepared only by DAY, SON & HEWITT, 22 DORSET STREET, BAKER STREET, LONDON, W.

And sold by Messrs. Burgoyne, Burdidges & Co., Barclay & Sons, W. Edwards, Newbery & Sons, Sanger & Sons, Hovenden & Sons, and all Wholesale Druggists, in London; Hood & Co., Melbourne; Kempthorne, Prosser & Co., Dunedin and Auckland; Fairthorne & Co., Launceston.

HORSES.—LIEUT. JAMES' BLISTER

(Manufactured by R. J. JAMES, the Grandson of the Inventor).

THIS CELEBRATED BLISTER IS NOW OFFERED TO THE TRADE AT THE FOLLOWING REDUCED PRICES:—
 1 oz. pots from 14/- per doz. to 12/6 per doz. 1 lb. pots from £4 0 per doz. to £4 0 0
 2 " " £1 5 6 " £1 3 0 " 1 " " 7 16 0 " 7 10 0
 4 " " 2 8 0 " 2 4 0 " 1 " " 7 16 0 " 7 10 0

Observe the Trade Mark.—"A Horse's Head" on the top of each Pot, and the signature, R. J. James."

Wholesale Agents, BUTLER & CRISPE, 4 Cheapside; NEWBERRY, 37 Newgate Street; MAW, SON & THOMPSON, 11 Aldersgate Street; HAYES & Co., Dublin; GOULDING, Cork; FOGGITT, Thirsk; and SANG & BARKER, Edinburgh. Agents for the Colonies required. Apply, with reference, to R. J. JAMES, South Retford, Notts.

JAMES v. JAMES.—LORD ROMILLY, the Master of the Rolls, on February 23, 1872, declared "that I had an equal right with other members of the Inventor's family possessing the receipt to make and sell this Blister."—R. J. JAMES.

ESTABLISHED 1833.**HORSES.—LIEUT. JAMES' BLISTER.****CAUTION.**

The annexed Label is at the top of every Pot of the ORIGINAL and only GENUINE BLISTER.

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Baines & Co., Edinburgh, Liverpool, and York, are now and have been Agents 45 years.



AGENTS:—Sutton & Co., 10 Bow Churchyard; W. Edwards & Son, 157 Queen Victoria Street; Newbery & Son, 37 Newgate Street; Evans, Lescher & Evans, Bartholomew Close; Burgoyne, Burdidges & Co., 16 Coleman Street; Lynch & Co., 171A Aldersgate Street; W. Mather, Farringdon Road, London, and Manchester; R. Hovenden & Sons, 93 & 95 City Road, Finsbury; Sanger & Son, 150 Oxford Street; Millard & Sons, 40 Charterhouse Square; Corry & Soper, Shad Thames; A. A. Campbell, Leadenhall Street, London; Woolley, Sons & Co., 59 Market Street, Manchester; Apothecaries Company, Virginia Street, Glasgow; Boileau & Co., Bride Street, Dublin; McMaster & Co., 121 & 122 Capel Street, Dublin; Clarke & McMullen, Victoria Street, Belfast; D. Galbraith, Londonderry; M. C. Delacoe, Pharmacie Anglaise, Bruxelles. And by all Chemists, in Paris, 1/6, 2/9, and 6/1.

COLONIAL AGENTS:—MELBOURNE and WELLINGTON: Felton, Grimwade & Co.; SYDNEY, BRISBANE, and LAUNCESTON: Elliott Bros. & Co.; DUNEDIN and AUCKLAND: Kempthorne, Prosser & Co.; CALCUTTA: Smith, Stanistreet & Co.

W. H. JAMES, Sole Manufacturer, STAMFORD, FARNBOROUGH, BERKS. A inserted in "Bell's Life" 49 years. Beware of Spurious Imitations.

SPONG'S (Registered)
BEDFORDSHIRE
PIG POWDERS

CURE Swine Fever, Lameness, Fits, Hoose, Coughs and Colds, Eruptions of the Skin, Milk Fever, Worms, &c.

Being advertised throughout the country, and exhibited at the various Agricultural Shows, is causing a large demand.

Handbills, &c., forwarded on receipt of Business card carriage paid.

Proprietors: **SPONG & SON,**
AGRICULTURAL CHEMISTS
BIGGLESWADE, BEDFORDSHIRE.

Wholesale Agents—BARCLAY & SONS, SANGER & SONS,
 BOURNE & TAYLOR, &c.

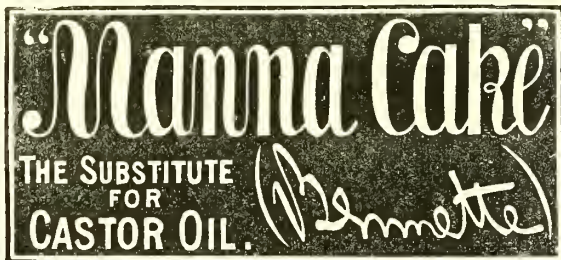
FOR CLEANING PLATE.
BRADLEY & BOURDAS'S
ALBATON or WHITE ROUGE,
 For Cleaning Gold, Silver, and Plated Goods.

Since its introduction as a substitute for the ordinary Rouge, a quarter of a century ago, the sale has amazingly increased both at home and abroad. A trial is only needed to prove its superiority over other plate powders in use. Sold in Boxes at 1s. and 2s.; Tins, 6s. 6 Pont Street, Belgrave Square, and 48 Belgrave Road, London, S.W.

SOLE AGENCY OFFERED

TO FIRST-CLASS BRITISH, COLONIAL, AND FOREIGN CHEMISTS.

REGISTERED
TRADE MARK,
No. 22,133.



Wholesale, 12/- per gross.
Less 12½ per cent. at one month.
„ 5 per cent. at three months.
„ 15 per cent. off cash with order.
Retail, 1½d. each (18 - per gross).

SUPPLIED TO ONE RETAIL CHEMIST IN EACH TOWN OR DISTRICT.

CONDITIONS OF AGENCY.

1.—Perpetual Sole Agency Guaranteed. 2.—2,000 Handbills, containing Trade Mark, and with the Agent's name at foot, are sent with each gross ordered. 3.—No less quantity than 1 gross will be sent out. 4.—Agent to take at his own risk quantities as here given, viz.—In Great Britain, 1 gross for every 4,000 population; in Ireland, 1 gross for every 6,000 population, of the town or district for which he accepts. Carriage paid in England over 5 gross, Ireland over 10 gross. 5.—Terms cash, or two reputed referees.

TO COLONIAL AND FOREIGN HOUSES.

Monopolies are offered on terms enabling them to force the sale in any way they think best. Terms 12s. per gross, free alongside ship, less 25 per cent. for cash against shipping documents. A liberal supply of printed matter is included in this, the consignee issuing such as he thinks best for his monopoly, the large margin of profit being allowed for this and retail profits. On orders of 20 gross and upwards at a time printed matter is supplied in any language. These contracts are made on the basis of 1 gross for every 8,000 population, and the interest of consignor and consignees will be enhanced by the contracts covering as large districts as can conveniently be managed. In these cases the whole quantity contracted for should be taken out within three years, and consignees must guarantee in writing not to supply the home trade through any source.

Applicants for these must state the boundaries of monopoly sought, and its population, which will be compared with printed statistics. Should these boundaries infringe on existing monopolies, the fact will be pointed out, and arrangements made accordingly.

EXTRACTS FROM AGENTS' LETTERS.

"Please forward another 4 gross. Its pleasant taste and easy operation constitute it a favourite medicine in my own, as in other families."

A. T. BORTHWICK, Chemist, Selkirk.

"Send another 4 gross. I am doing a good trade in it, having, in fact, got through nearly 8 gross since September last."

RICHARD MARCH, Chemist, Leicester.

"Your offer of Agency to hand, which I accept on conditions named, as your arrangements appear thoroughly straightforward, and for that reason command my attention."

"I am particularly pleased to note you supply Chemists only, and them direct. It is an article which must command a good sale."

G. K. GOSSOP, Chemist, Grimsby.

"A Physician in the West of England says he gave Calomel and Jalap in repeated doses without effect, but a MANNA CAKE acted almost immediately."

"The above is a bona-fide statement, but I am not authorised to give name and address."

"The article is selling freely."

W. H. HAYWARD, Chemist, Trowbridge, Wilts.

"They are much liked, and sell well."

W. GRAHAM CARR & SON, Berwick.

"I can do with 8 gross."

T. HAY-HENRY, Chemist, Banff.

"Send 16 gross with necessary bills."

R. SOWERBY, Middlesborough.

"Send another 4 gross. My counter sale last week was over 10 dozen." [Fourth order.] JOHN LEA, Chemist, Folkestone.

"It answers the purpose admirably, and gives great satisfaction. It (or you) may justly be called 'The Children's Friend.'"

H. T. DOBLE, Chemist, Tavistock.

"The Manna Cake is selling well, and gives great satisfaction. It is an excellent preparation."

S. STEPHENS, Chemist, Huddersfield.

[Mr. Stephens has contracted for 150 gross.]

"It is one of our best preparations."

HENRY BECK, Chemist, Albrighton, Salop.

"It is singularly mild and efficacious. I certainly consider it a splendid substitute for Castor Oil."

A. CHRISTIE, Chemist, Newton-Abbot, Devon.

"We find that the Manna Cake sells well, and, so far as we can ascertain, gives great satisfaction. It is taking a good place among the established aperient medicines, and is much liked by children, as well as by adults."

DAVIDSON & LESLIE, Chemists, Belfast.

Advertisements will be continued in the Trade Journals until every Chemist feels it to his interest to stock the Manna Cake.

P.S.—There have been in all nearly 450,000 Manna Cakes ordered.

All communications to be addressed—

BENNETTE & COMPANY,

62 DALE ST., LIVERPOOL,

Who are Prepared to Execute Orders to any amount at One Day's Notice.

The MANNA CAKE is sent out in Handsome Decorated Tin Boxes, suitable for display on the Counter.

BOURNE, JOHNSON & LATIMER

Direct SPECIAL ATTENTION to a few of their most saleable Goods, suitable for the present Season. Chemists who wish to increase their returns, who have not seen these Goods, are invited to make up a small sample order, as they are "having a run."

Absorbent Pads for Ladies' Use.

Price 14/ per gross. To retail at 2/ per doz.

Ladies' Suspenders, to use with above.

Retail at 2/ each; per doz., 14/.

A supply of circulars sent with each parcel to facilitate the sale of these articles.

Camphor Locketts.

These are still in great demand. Gold and Silver Colour.
8/6 per gross. Three doz. in a Show Box.

Mentholeum, for Neuralgic Pains.

Sixpenny size, 4/ per doz.; Shilling size, 8/ per doz.

This is very saleable, and is worthy of an introduction.

Earthenware Inhaler.

Retail at 2/6; per doz., 18/.

Throat Spray.

GLASS, with Indiarubber Ball. Retail at 3/6 each; per doz., 27/.

Respirators, 27 Patterns.

Send for Special List of Prices.

Sanitary Paper, in Suspender Case.

Very saleable. Per doz., 8/.

Japanese "Curl" Paper.

In packets of 500. Per doz., 4/.

Sixpenny Watch Bottle (Smelling Salts).

Filled. One doz. in a box. Per doz., 4/.

Nursery Lamp.

The Cheapest in the Market. Sells at 2/6; per doz., 22/.

The Antiseptic Inhaler Respirator

(On Dr. Coghill's Principle). Per doz., 18/ and 21/.

Our Celebrated Floating Light

Burns all night.

Three months, 4/ per doz.; Six months, 8/ per doz.

The "Pet" Feeding Bottle

Is one of the most saleable in the market.

With Glass Screw Stoppers 4/ and 8/ per doz.
With Wood Top Corks 3/6 " 7/ "

Special price for one gross quantities.

Porous Plasters.

Poor Man's 2/ per doz.

Belladon 2/6 "

Strengthening 2/ "

Adhesive Plaster,

On Flesh-colour Fabric, always ready for use.

Sticks without any warmth other than that furnished by the body.

6d. per tin; 1 doz. in a show box, 3/6.

Sponges, Carded.

TURKEY OR HONEYCOMB.

8d.	1/	2/	2/8	4/	8/	12/	16/	20/	28/	40/
1d.	2d.	3d.	4d.	6d.	1/	1/6	2/	2/6	3/6	5/

All the above Goods bear a very good profit, and are specially recommended as being very saleable.

10 PER CENT. FOR CASH.

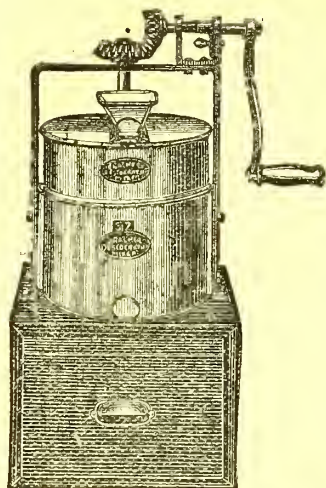
Having extended our Premises by the addition of the adjoining Warehouse, we are prepared to execute all orders promptly. We invite attention to our Show Room, and shall be glad to be favoured with a visit from our Country Friends.

BOURNE, JOHNSON & LATIMER

(SUCCESSORS TO BOURNE & TAYLOR),

Wholesale and Export Druggists' Sundriesmen,

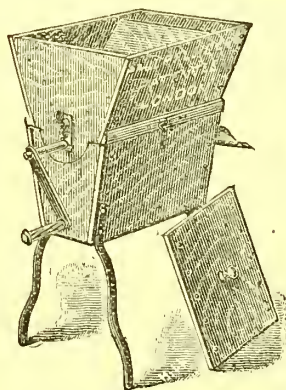
34 & 35 CASTLE ST., HOLBORN, LONDON, E.C.



BRACHER'S PATENT "Desideratum" Mixing Machines

Admirably adapted for mixing all kinds of powders, heavy or light, in the shortest possible time, thereby *superseding to a great extent the use of the Pestle and Mortar*, supplying a long-felt want amongst Chemists and Druggists, Grocers, Confectioners, Drysalters, Colour Merchants, and Manufacturers, and are capable of mixing either large or small quantities more quickly than by any other method. They can be worked either *with or without the cover*, are easily cleaned, and are, without doubt, the best and cheapest Mixing Machines ever invented; indeed, it would scarcely be thought possible that the articles could be so thoroughly blended in such an incredibly short time.

MANUFACTORY: 77 HIGH STREET, WINCANTON.



PAUL PFLEIDERER'S PATENT SIFTER

Is the **Cheapest and Simplest**, while it is more **Effective**, more **Easy to Handle** and **More Durable** than others.

Suitable for Sifting every description of Powders. Standard size, to sift 20 cwt. of Flour per hour by hand, price £5 10s.

Always in stock at the Sole Manufacturer's—PATENTEE OF THE CELEBRATED

UNIVERSAL KNEADING & MIXING MACHINE,

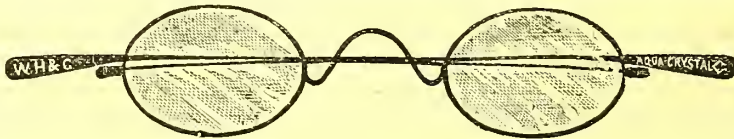
86 UPPER GROUND ST., BLACKFRIARS.

PAUL PFLEIDERER.

WM. HERBERT & GODFREY'S CELEBRATED AQUA CRYSTAL SPECTACLES (REGISTERED).

WM. HERBERT & GODFREY beg to draw the attention of Chemists and Druggists to their method of supplying their celebrated AQUA CRYSTAL SPECTACLES.

W. H. & G.'s Glasses are kept by most of the leading Chemists and Druggists all over the world. W. H. & G. supply their customers, free of charge, with Showcards for Windows, &c., Test Types and Optometer to assist in taking the correct




sight. Pamphlets on "Sight, and How to Preserve it," containing medical testimonials, &c., &c., and with the customer's name and address printed on the cover; also circulars, posters, &c., &c.

W. H. & G. only supply their goods on the following terms:—5 % off for Cash in ten days; 2½ % off for Cash in three months; or half Cash to be paid in three months and balance in six months, net.

NO GOODS SENT OUT ON SALE OR RETURN.

For full particulars and Price Lists, apply to

{ WM. HERBERT & GODFREY, 55a Bernard Street, Russell Sq., London, W.C.

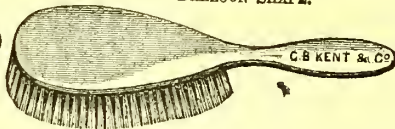
 Please see pages 46 to 48 for Exchange
Column Advertisements.

SYDNEY. 1879.



1st Special Award for
Brushes.

BALLOON SHAPE

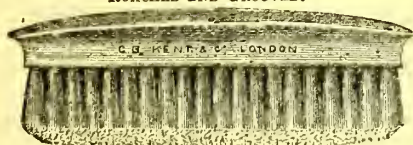


G.B. KENT & CO

Price per doz.

First Quality	<i>G.B. Kent & Co</i>		<i>London</i>	6/8
Second Quality	<i>Imperial</i>		<i>Quality</i>	5/0
Third Quality	WARRANTED		LONDON	4/0
Fourth Quality	WARRANTED		SECURE	3/6
Fifth Quality	WARRANTED		SOUND	3/0
<p> Badger Hair Tooth Brushes 4/6 6/0 8/0 11/0 per doz Children's " 3/0 3/6 4/0 " Tooth Brush Guards Metal, 2/3 Porcelain, 4/6 " Japanned Wet Brush Holders 3/0 5/6 6/0 13/0 " </p>				

ROACHED AND GROOVED.

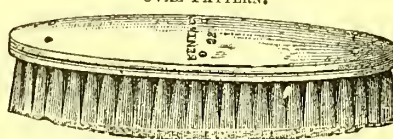


CONCAVE



NAIL

OVAL PATTERN.



UNION PATTERN



SPONGES.—At 11 Great Marlborough Street is a Sponge Room worth the inspection of the Trade.

BISHOP'S PATENT STEEL BOUND PARCELS POST BOX.

INDESTRUCTIBLE, LIGHT, AND CHEAP,

And is guaranteed to be the best box in the Market for
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MADE ANY SIZE AND TO SUIT ANY TRADE.

Wholesale only of the Patentee and Manufacturer—

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IN WRITING FOR PRICES, PLEASE STATE SIZE REQUIRED.

PAPER BOX MAKING MACHINERY

MILLBOARD CUTTING MACHINES.
GUILLOTINES.
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MANUFACTURED BY

DIVISION SAWING MACHINES.
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THUMB-HOLE MACHINES, &c.

W. CROSLAND,

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THE "ECLIPSE" PARCEL BOX,

(WOOD) NUTTER'S PATENT.

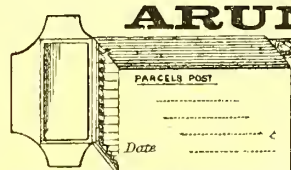
Simple, Cheap, and Efficient, for Post, Rail, or Messenger. In sizes for all purposes.

SPECIAL BOXES FOR BOTTLES (LINED AND UNLINED) FOR CHEMISTS, WINE MERCHANTS, &c.

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Are perfectly secure and safe for transmission through the Post.

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Folding Bottle Cases of all Descriptions and Sizes. Price List on application.

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NET TRADE PRICE:

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AS LARGE AND AS PRETTY AS
ANY IN THE MARKET.

REDUCED FIGURE OF POT COVER.

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(FOR THE HAIR).

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By an Indenture dated 7th May, 1883, F. NEWBERRY & SONS have become *SOLE PROPRIETORS* of the two Articles above named, and are prepared to supply the same as heretofore.

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A GOOD WINTER LINE.] **"SAUNDERS'"** [WILL HAVE A LARGE SALE.**GENUINE FRENCH MUSTARD LEAVES,***Most reliable. Each Leaf in a separate envelope, with full directions.*

PUT UP IN HANDSOME DISPLAY COUNTER CASES, HINGED LIDS, CONTAINING HALF A GROSS.

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A SPLENDID LINE IN PUFF BOXES. BEST VALUE IN THE TRADE.

EBONIZED PUFF BOX, with FLOWERS and MOTTOS

In Colours, and fitted with Silk Top Puffs, Ivory Knobs, put up in half-dozen, labelled Show-cases for the Counter, 2½ inches (at bottom), 8s. per dozen; 3 inches (at bottom), 12s. per dozen; usual prices, 12s. and 16s. per dozen.

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SAUNDERS'
I-X-L SAFETY PARCELS POST BOX,

Made extra stout and edged with cloth, lined with Patent Corrugated Paper.

Nos. ..	1	2	3	4	5	6	7	8	9	10
Size Inside ..	4½ × 1½ × 1½	5 × 1½ × 1½	5½ × 1½ × 1½	5½ × 1½ × 1½	6 × 2 × 1½	6½ × 2½ × 1½	7½ × 2½ × 2	7½ × 2½ × 2½	7½ × 3½ × 2½	8½ × 3½ × 2½
To Hold ..	1 oz.	1½ oz.	2 oz.	3 oz.	4 oz.	6 oz.	8 oz.	10 oz.	12 oz.	16 oz. Bottles.
PRICE ..	10/-	11/-	12/-	12/-	14/-	16/-	18/-	20/-	22/-	24/- per gross.

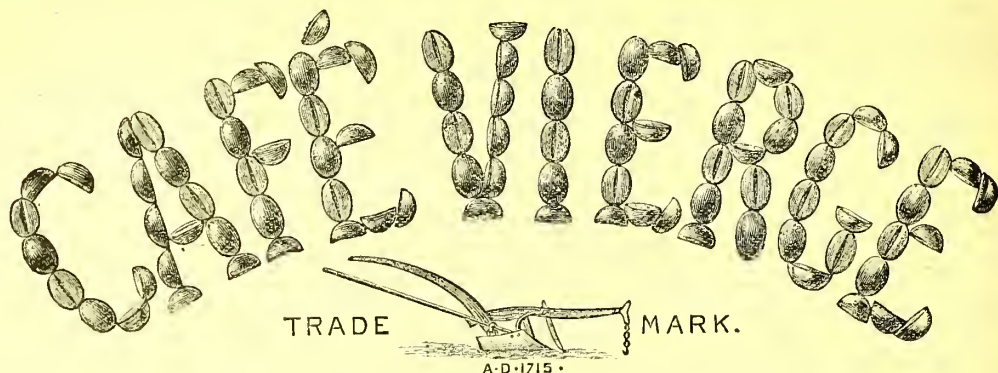
The sizes given are length, width, and depth.

These Boxes combine in an eminent degree the requisite strength, lightness, and security necessary for making them the most suitable packages at present known for sending articles of any description through the Post, meeting to the fullest extent all the requirements of the Postal Authorities.

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THE HIGHLY CONCENTRATED ESSENCE OF PURE COFFEE

GUARANTEED TO CONTAIN NO ADMIXTURE WHATEVER.

By the use of the *Café Vierge*, which is the pure concentrated Essence of the finest Coffees imported, a perfectly clear cup of the choicest flavoured Coffee may be made instantaneously without the least trouble, and with the certainty that it will never vary.

This Essence is extracted at Allen & Hanburys' laboratory by a new and very perfect process, by means of which the delicate flavour and aroma of the Coffee are retained without any of the coarseness and harshness which are so often perceptible in the ordinary brewing of the ground berries. It is exquisitely soft and delicate in flavour, and will be found quite unique, no essence at all comparable in quality and strength having heretofore been offered to the public.

By its use *all waste is avoided*, as it is only necessary to prepare the exact quantity required, a single cup being as easily made as a larger quantity. It may be made *entirely with milk*, and, thus prepared, is more nourishing than the usual household Coffee, which must of necessity contain a considerable proportion of water.

A very pleasant and invigorating beverage is made by adding one or two teaspoonfuls of the *Café Vierge* to a bottle of Seltzer or Soda Water, or a glass of cold milk (with sugar to taste); and used in this way the Essence will be found of great convenience to tourists, travellers, and sportsmen, more especially as, being very highly concentrated, it occupies little bulk.

Mazagran, one of the favourite drinks of the Continent, is made by adding one or two teaspoonfuls of the Essence to a tumbler of cold or iced water, with the addition of a little Cognac, and sweetened to taste.

The Essence will also be found extremely useful for flavouring Ices, Creams, Cakes, &c.

THE CHEMIST AND DRUGGIST, Oct. 15, 1883, writes:—

"Under this title (*Café Vierge*) Messrs. Allen & Hanburys and Ridgway & Co. have brought out jointly an essence of coffee which really does give satisfaction. It has no sour taste or smell, but, instead, diffuses in a high degree the purest coffee aroma. One or two teaspoonfuls added to a cup of boiling milk and water make one of the most tempting of beverages."

DIRECTIONS FOR USE.—Add one or two teaspoonfuls of the *Café Vierge* to a Cup (according to size) of hot milk, or hot water and milk, and sweeten to taste.

Price 1/6 per Bottle; Wholesale, 16/ per doz., subject to usual discount (5 %).

Obtainable from Patent Medicine Houses, or direct from either of the Joint Proprietors—

RIDGWAY & CO., Tea and Coffee Merchants, 4 & 5 King William St., City, London;
ALLEN & HANBURYS, Plough Court, Lombard Street, London.

SAMPLES, CIRCULARS, AND SHOW CARDS FREE ON APPLICATION.

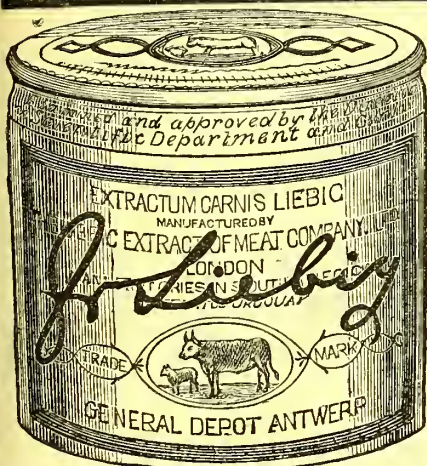
- Acetic Acid**
Dunn
Aer & Min Wtrs
Esculap
Apollinaris (Hunyadi)
Barnett & Foster (Fruit Champagne)
Beckett (Winterine)
Chemists' Aërated Water
Ellis (Ruthin)
Gallais
Hooper
Jugram & Royle
Jewsbury
Mills (Various)
Oppel (Friedrichshall)
Schwepe
Taylor
Aer Water Plant
Barnett
Bratby & Hinchliffe
British Syphon
Bush (Foam Producer)
Davenport
Favarger
May Davis
Stevenson (Foam Producer)
Taylor Hayward
Vallet
Wileocks, N. G.
- Agencies Abroad**
Aickin (Auckland)
Bathgate (Calcutta)
Cocking (Japan)
Davison, A. (Kimberley, S. Africa)
De Caycedo (U. S. Colmba)
Evans, H. S. (Montreal)
Felton (Melbourne)
Fouzera & Co. (New York)
Heynes, Matthews & Co. (Cape Town)
Kempthorne (Auckland, Dunedin)
Lennon (Port Elizabeth)
Mason (Calcutta)
Plomer (Simla & Lahore)
Prosser (Sydney)
Rennard (Bombay)
Rooke (Melbourne)
Roberts (Paris)
Symes (Simla)
- Almanacs**
Feltwell
Silverlock
- Analysts**
Corbyn
- Anatto**
Fullwood
- Apparatus**
Darton (Thermomrtrs, &c.)
Metz, P. (Glass & Porcelain)
Morgan (Cnables)
Orme (Scientific)
Parnall & Sons (Balances)
Pfeiderer (Sifters, Mixers)
Trocmier (Scales and Weights)
Whitall & Tatum
- Atomisers**
Codman
- Baking Powder**
Goodall
Horsford
- Bandages**
Bailey, W. H., & Son
Davidson Rubber Co.
Lindsey
Robinson & Sons
- Bank & Building Society, Birkbeck Books**
Baillière (Luc's Grammar, &c.)
Bedford (Pharmacist)
Churchill (Various)
Dohell, Dr., Works by Keene (Compan., Brit. Hon. Phys.)
Kilner (Modern Pharm.)
Skuse (Confectioner)
Smith, J. (Aërated Waters)
- Blacking**
Electric Blacking Co.
- Bottles**
De Luca
Hearn
Kilner
Lynch
Poths
Toogood
Turner, Thos.
Vallet
Whitall & Tatum
Youldon
See Stoppers
- Boxes**
Arunel (Parcels Post)
Ayrton & Saunders
Bishop's (Steel-bound Parcels)
Crosland (Cardbox makers)
Mather (General)
Munt (Parcels Post)
Nutter (Parcels Post)
Brandy
Export Co.
- Brushes**
Ashworth
Kent
Maw, Son & Thompson
Metz (Paint)
Wilkinson (Paint)
- Camphor**
May
Murray
- Capsules**
Christiani (Medicinal)
Denoual
Gabriel & Troke (Horseballs)
Plauten (Medicinal)
- Carbolic Acid**
Zimmermann (Graessers)
- Castor Oil**
Allen & Hanburys
Harker, Stagg & Moss
Wyleys
- Cement**
Kay
- Chalk (Precip)**
Levermore
- Cheken**
Wyleys
- Chemicals**
Forster
Howards & Sons (Pharmaceutical)
May
Newton
Rith (Verdigris)
Smith, T. & H.
Stagg & King
Whiffen
Zimmermann
- Chest Protectors**
Bourne, Johnson
Lynch
Maw
Pattison
Thompson, Millard
- Chinoline**
Zimmermann
- Chlorodyne**
Davenport
Gibson
Towie
Twemlow
- Chloroform**
Duncan
Smith
Zimmermann
- Cigars**
Beynon & Stocken
Partridge
Requa & Wetmore
- Cocoa and Chocolate**
Cadbury
Fry's Malted
Phillips & Co.
Van Houten
- Cod Liver Oil**
Allen & Hanburys
Baker, J. C., & Co. (Emulsion)
Cocking (Japan)
Harker, Stagg & Moss
Scott & Bowne (Emulsion)
Smith, J. J.
Southall Brothers
Woolley
Wyleys
- Coffee**
Allen & Hanbury's (Café Vierge)
Evans (Conroy's Malt)
Phillips & Co.
Phillips & Son
Ridgway & Co. (Café Vierge)
- Confectioners**
Craven (Wholesale)
Gibson
Skuse (Handbook)
- Corn Cures**
Faulkner
Hargreaves
Robinson
Savar
Seabury
Wells, E. S.
Young
- Crucibles**
Morgan
- Dentistry**
Buck (Lessons)
Smile (Stoppings)
White, S. S. (Materials)
- Disinfectants**
National Chemical Comp.
Sanitas
Shilton (Affinitas)
- Dog Biscuits and Dog Medicines**
Spratt
- Dentifrices**
Barton
Beddard
Bourne & Johnson
Darling (Coffin's)
Evans
Jewsbury
Maw
Newbery (Cherry Paste)
Ruepini
Sutton
Thompson & Capper
Woods
- Druggists' Sund**
Bourne
Cowan (Vaccinatio. Shields)
Evans and Sons
Lynch
Maw
Requa and Wetmore
Savar
Thompson, Millard
- Drug Grinders**
Aitken & Son
- Dyes**
Sands Manufacturing Co.
Wells, Richardson & Co.
- Earthen Goods**
De Luca
Morgan
Poths
Toogood
- Eau de Cologne**
Farina, J. M., No. 4
Savar
- Electric Appar**
Darton (Bells)
- Enemas**
Davidson Rubber Co.
Evans, Sons
Ingram
Lawrence
Savar
- Essences (Fruit and Soluble) & Essential Oils**
Bratby & Hinchliffe
Burgoyne
Brath (Lemons, &c.)
Charras
Cocking (Peppermint, Japan)
Felton (Eucalyptus)
Fratelli
Haensel
Harker, Stagg & Moss
Hay
Hays and Baker
Raynaud (Lavender, &c.)
Schlesinger
Stevenson and Howell
Symes (Lavand.)
Woolley (Sandal)
Wyley (Peppermint)
- Ethers**
May & Baker
Robbins
- Extract of Meat**
Australian (Rarmoric)
Brand
Corbyn (Valentine)
Kreochyle
Liebig Co.
Mottershead (Benger's)
Nelson
Rigaud (Peptones)
- Feeding Bottl 3.**
Bourne
Hearn
Kilner
Maw
- Filtering**
Lipacomb (Filters)
Maignen (Filtre Rapide)
Silicated Carbon
- Foam Producers**
Bush
Stevenson and Howell
- Food (Infants' and Invalids)**
Brand
Jensen (Peptones)
Kreochyle
Mottershead
Nestle
Savory
Schweitzer (Invention)
Southall
- Formulæ**
Brooks
- Fuller's Earth**
Chubb
Mumford
- Ginger Ale**
Bingley
Cantrel
Harston
Hay
Mills
Ross
- Glycerine**
Fink & Co.
Orfit
Schmedes (Sarg)
Zimmermann
- Granular Preparations**
Bates
- Gums**
Fink & Co. (Arabic and Tray)
- Guttapercha**
Duncan
Stevens
- Hair Preparations**
Cheshborough
Newbery (Balsol)
Robare (Aurcoline)
Rogers (Lotion)
Savar
- Herbalists**
Alfibre Woodward
Butler, McCulloch
Eisner & Mendelsohn
Parke, Davis
Peck & Velsor
- Homœop Medcns**
Butcher
Conyngham (Wafers)
Gould
Leath
Thompson and Capper
White and Lansdale (late Gould)
- Hypophosphites**
Forster & Gregory
Typke & King
- Ice**
Harrison
- Inhalers**
Field (Pocket)
Maw
- Ink**
Antoine
Beardsall (Sack Marking)
Bewley's (Drapers')
Bond's Daughter (Mark)
Bowness (Writing)
Duncan
Hyde & Co.
Mark (Marking)
Murphy (Marking)
Proctor (Defiance)
- Insecticides**
Bourne (powder)
Helliard
- Insurance**
National Life
- Kairin**
Burgoyne, Burhidges
- Ketchup**
Farrow
- Kneading**
Pfeiderer
- Leather**
Hymans
Lee, T. P.
- Leeches**
Butler, McCulloch
Fitch
Friedlander
- Licorice**
Mellor & Rittenhouse
- Lime Juice**
Montserratt (see Evans)
Rayner & Co. (syrup)
- Linseed**
Colthurst
Kemp
Woolley
Wrangham
- Lint**
Robinson & Sons
- Lozenge**
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Craven
Gibson
Lochland (Malt Extract)
Towle (Chlorodyne)
Twemlow
- Magnesia**
Dinneford
Henry
Murray
- Malt Extracts**
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Baur & Co. (Linck's)
Burroughs
Evans, J.
Fry's Cocoa
Harker, Stagg & Moss
Loflund (Hordlam)
Maltine
Wyleys
- Match Cases**
Dangfield
- Measures, Grad**
Toogood
- Medicine Chests**
Day, Son & Hewitt
- Menthol**
Christy
Cocking
Symes & Co.
- Mixing Machines**
Braheer
Pfeiderer
- Morphia**
Smith, T. & H.
- Musk**
Symes
- Mustard**
Ayrton & Saunders
Finch
Metz (leaves)
- Ointment Bases**
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Evans, Sons (Fossiline)
Ewen (lard)
Grindley & Co. (Petroleum Jelly)
Wyley (Cicatin)
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Besemer (Gold)
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Jackson
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Wrangham
- Pancreatine**
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- Paper &c**
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Woolmans (Non-Arsenical Wall)
- Parchment**
Hymans
- Patent Medicines**
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Baker, H., & Co. (Pills)
Bastin (Ba'moine)
Bates (Breast Salve)
Beecham
Bennette (Manna Cake)
Buxton (Vocaline)
Clarke (Tikhe)
Edwards (General and Rocle's Embrocation)
Evan, S. (Styptic)
Feltwell (Balsam of Ani-seed)
Fennings (Powders)
Goldhart (Galactagogue)
Hayman (Horehound)
Held (Whooping Cough)
Helyman (Kola)
Himrod Manufacturing Co.
Hogg's Horehound Honey
Holloway (Pills)
Holt (Whooping Cough)
Hop Bitters
Horsford (Acid Phosphates)
Jones (Aperient Pills)
King (Hop Bitters)
Lalor (Phosphodyne)
Lincoln (Clarke's Mixture)
Llewellyn (Elixir Phosphorus)
Morrison (Dipsomania)
Osborne (Drops)
Peck & Velsor
Powell's Balsam
Pritchard (Teething Pow)
Quick (Sweeting's Toothache Liniment)
Reynolds (Gout)
Richards, J. M. (Americau)
Roberts (Foreign)
Russini (Styptic, &c.)
St. Dalmas
Sanger (Widow Welch)
Sussex Drug Co.
Thompson, Millard
Tomlinson (Hepaticus)
Wells, E. S.
Woodcock (Pills)
- Pepsine &c**
Fairchild Bros.
Gabriel & Troke
Hottot
Jensen (Crystallised)
Mottershead
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Savory & Moore
Zimmermann
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Crowu Perfumery Co.
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Greensill
Hovenden
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Maw
Newbery
Norina
Osborne Garrett
Rieckecker
Rommel
Robinson Bros.
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Schmedes (Sarg's)
Thompson, Millard
Violet (Soap)
West
Whitaker
Woolley & Sons
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- Petroleum**
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Bais Bros.
Barron
Burgoyne
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Coblyn
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Evans (Fluid Extracts)
Fletcher (Iiquors)
Gabriel & Troke
Giles
Heathfield
Hewlett
Keith (Cone Tinctures)
Milbau (Elixir Calisaya)
Parke, Davis
Rigaud
Savory
Scott and Bowne
Sellers (Quinquine)
Solihall (Non-alcoholic Tinctures)
Squire (Chemical Food)
Stearns & Co.
Symes
Twemlow (Somnicine)
Whiffen
Woolley
Wright C. & Co.
Wright, Layman
Wyleys
- Phosphorus &c**
Newton (Acids and Salts)
Savory (Pills)
- Pill Machines**
Wells, C. (Coater)
- Pills (Coated &c)**
Alfibre Woodward
Burroughs
Parke Davis
Stearns
Warner (Newbery)
Woolley
Wyleys
- Plasters**
Mather
Maw
St. Dalmas
Savar
Seabury
Thompson, Millard
- Podophyllin &c**
Keith
- Polishing**
Baumgar
Bradley
Brown
Cheshbrough
Oakley
Pickering
Savar
- Printing**
Baskerville Co.
Lamb, J. B.
- Quinine**
Howards & Sons
Rigaud (Pelletier's Capsules)
Whiffen
- Respirators**
Bourne, Johnson
Thompson, Millard
- Salicine**
Smith, T. and H.
Whiffen
- Salicylic Acid**
Burgoyne
Zimmermann
- Salines**
Lamplough
- Sauces**
Evans, Sons
Goodall
Lazebly
- Scales & Weights**
Trocmier
- Schls of Phrmeey**
Central School
Edinburgh School
Edwards
London Homœopathic Hospital
Manchester College
South London School of Pharmacy
Tully
Westminster College
- Seidlitz Powders**
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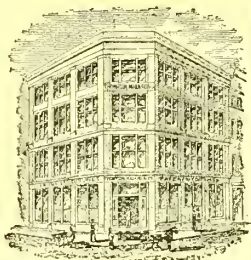
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 3. HERFORDSHIRE.—Light Retail, Dispensing and Prescribing; returns £550; rent £30 on lease; price valuation of stock and fixtures (no goodwill) about £350; photo can be seen at offices.
 4. STAFFORDSHIRE.—Good class Dispensing; light retail, medical appliances and proprietary articles; returns about £1,200 at very good profits; price £750 or £150 goodwill, and valuation of stock and fixtures; every investigation courted.
 5. LIVERPOOL.—Good family Retail and Dispensing; handsomely fitted and well stocked. Returns about £500 at large profits; price valuation of stock and fixtures only.
 6. LONDON, S.W. (In main road).—Dispensing and light retail; returns about £650; price £600.
 7. LONDON, N.—Retail, Dispensing, and Prescribing Business in an important main thoroughfare; present returns about £9 a week, capable of being doubled; handsomely fitted shop; moderate rent on lease; price £200. This is a great sacrifice and well worth the attention of a business man.
 8. LONDON, N.E.—An improving Retail, Dispensing, and Prescribing; returns about £8 a week at full prices; rent £30; price £250.
 9. LONDON (S.W. Suburb).—Good-class Family Retail and Dispensing; returns about £600 at full prices; handsomely fitted and well-stocked Pharmacy; good house on lease at moderate rent.
 10. LONDON, W.—Retail, Dispensing, Prescribing, and Dentistry; only opened a few months and already showing a very profitable and increasing return of £5 a week; Good shop, well fitted and stocked; rent low; price £200, including all dental appliances, &c.; rare opening for a dentist.
 11. WEST OF ENGLAND (Fashionable Town).—Recently established Mineral Water Manufactory, showing a profitable and rapidly increasing return; very convenient premises and good plant, expenses low, price about £450.
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Buyer and Seller, in addition to lengthened and varied experience in every branch of the trade, can command services at charges less than half the usual Commission.

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BUSINESSES FOR DISPOSAL.

A SMALL Business, established 24 years by present proprietor; leaving from age and illness; immediate; no reasonable offer refused; six rooms; £30. T. Hopkins, 78 Cornwall Road, Brixton Hill, S.W.

A GENUINE Retail and Prescribing Business in S.W. district, to be sold cheap; proprietor taken larger premises; very profitable; rent low; price to be arranged. Address, 'E. G.,' 138 New Road, Battersea, S.W.

S HOP and Premises to Let; best position in town; good opening for a Chemist; only one in town; population 25,000; rent £10. Apply, A. Brookes, 2 Quadrant, Cannon.

S MALL Retail and Prescribing, with a little Dispensing; large shop, well fitted; returns £300; increasing; rent £55; scope for good Prescribing and Dentist; in North London; price, including household furniture, &c., £300. Apply to Mr. Wilson, 60 Ludgate Hill, E.C.

C HOICE retail Dispensing and Prescribing Business in neighbourhood of Shrewsbury for sale; satisfactory reasons for leaving; price about £800. Full particulars on application to F. Moore Clements, Asylum Road, Birmingham.

L IVERPOOL.—The well-known old established Business, 2 Mill Street, Textile Park; one of the best and most commanding positions in South End, near the New Docks; of late been neglected; leaving entrance; rent £65. For further particulars apply to R. Thomas, 38 Linnet Lane, Liverpool.

£250 CASH will purchase a good Retail and Prescribing Business; returns over £1100 last year; good corner; dentistry wanting; good proprietary attached, only wants working; leaving patent's cut; drugs full prices; no tobacco or heavy trade; long lease and low rent. Messrs. Hine Gilbert & Co., 17 Hart Street, Bloomsbury.

F OR DISPOSAL, a good Branch Shop, established 16 years, doing a Mixed Trade in a good thoroughfare; now taking £9 to £10 per week; under good management the returns could be considerably increased; price £200. Apply, "X. Y. Z.," care of Messrs. Wyleys & Co., Wholesale Druggists, Coventry.

O LD ESTABLISHED Business for disposal, South Coast; fashionable Retail and Dispensing; patents cut; returns about £3000; rapidly increasing; net profits £600; proprietor's attention required elsewhere; incoming at valuation £2000 to £3000; part might remain on; partnership would be considered. Apply by letter to "Primus," Messrs. Hodgkinson & Preston, Bishopsgate Street, London.

B IRMINGHAM (33 Pigott Street).—This small, but very profitable, light Retail, Prescribing, and Dispensing Business, with or without the sole proprietary right to manufacture Whitworth's Powders (a specific for neuralgia, &c.); corner shop; well fitted; valuable lease; splendid opening for a good Prescriber; price about £250; bona fide purchasers only treated with. Further particulars on application to Griffin, Chemist, Monument Road, Birmingham.

F OR DISPOSAL.—A Genuine Light Retail and Dispensing Business in a celebrated Yorkshire watering place; good fixtures and stock; returns £650, rent £45, price £550. Also a small Business three miles distant from the above (a death vacancy), price only £145, rent £20. Also a General Business in a large manufacturing town, at a moderate price, proprietor being compelled to devote his time to another trade. Apply Mr. T. Brooke, Bramhope, near Leeds, or care of Hirst, Brooke & Hirst, Leeds.

TO LET.

T O LET, an old established Chemist's Shop, with good warehouse at Spalding; possession January 6, 1884; rent £12. Apply, Mr. Thos. Draper, 21 Albion Street, Spalding.

C ANNON STREET, CITY.—To be Let, a portion of No. 42, over the Office of this Paper, having an entrance in Cannon Street and in Bow Lane, fronting Queen Victoria Street, and immediately opposite the Mansion House Station. Floors average 2,000 superficial feet. Particularly adapted for Manufacturers' London Show Rooms. May be viewed, and further particulars had, on application to the Publisher of THE CHEMIST AND DRUGGIST, 42 Cannon Street, London, E.C.

EMPLOYERS WANTING ASSISTANTS.

C HEMICAL TRADE.—Assistant required to take Charge of Dry Counter. Address, stating experience, Dunn & Co., Stirling Chemical Works, West Ham.

S ENIOR ASSISTANT Wanted, about 30; qualified; state age, height, experience, and salary required, outdoor, and enclose carte which will be returned. 'Beta,' 90 Western Road, Brighton.

W ANTED, a Qualified Man with not less than £100 in hand, to join advertiser in the extension of a business; a chemist bought out in the street for street improvements; no other chemist near. Inquire, G. Green, 5 Haberfield Crescent, North Street, St. Paul's, Bristol.

W HOLESALE DRUG TRADE.—Junior Invoice Clerk Wanted; must be quick at figures and write a good hand. None but those accustomed to a similar position need apply by letter to C. R. Harker, Stagg and Moss, 15 Laurence Pountney Lane, Cannon Street, E.C.

J UNIOR ASSISTANT required in January; one who can extract teeth, prescribe, and does not object to travel, for country wholesale. Preference given to total abstainer, non-smoker, Wesleyan. State age, experience, references, and salary required (Yorkshire). 97/32, Office of this paper.

ASSISTANTS WANTING SITUATIONS.

A S ASSISTANT in London; age 29; good reference. C. Tyler, Walton, Ipswich.

A S MANAGER, *Locum Tenens*, or outdoor Assistant; can extract teeth. For particulars apply 'S. F.,' Varna Road, Fulham, S.W.

JUNIOR in a large place of business in a large town. W. G. Duck, Rose Cottage, Gabaiva, Cardiff.

A S MANAGER; qualified; first-class London and country experience; good prescriber, &c.; married. J. B. Senior, Post Office, Birmingham.

MANAGER, indoor or outdoor Assistant, qualified; good prescriber and tooth extractor; temporary, or permanent preferred; disengaged; London and country experience. 'A. P. S.,' 321 Hackney Road, E.

A S DISPENSER or Assistant; age 23; seven years' experience; time for attending afternoon lectures in lieu of salary; good reference. Newmann, 186 Marylebone Road, W.

WANTED by Energetic Man with 25 years' good business experience (5 years in last place), situation as Manager or Senior; married; outdoor. 'H. C.,' Mr. Hills, 2 High Street, New Thornton Heath, Surrey.

A S TRAVELLER; commission and part expenses, by Chemist in business; will commence travelling January, West, South, and Midlands. Address, "Commission," Messrs. Hearon & Co., 5 Coleman Street, London.

PERMANENCY, by Registered Chemist of experience, as Manager of a small Retail; middle age; care of daughter, age 6 years, accepted for part salary; good references. C., 141 Kentish Town Road, N.W.

APPRENTICE.

WANTED to Apprentice, indoors, for three years, to a Wholesale or Retail Drysalter, Tea, or Italian Warehouse, a youth just 17, leaving school at Christmas. Address, 'C.,' Mrs. Chambers, 3 Hart Place, Longbrook Street, Exeter.

EXCHANGE COLUMN.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the Advertisement by the Publisher of *THE CHEMIST AND DRUGGIST*, and all correspondence relating to it must be addressed to the "Publisher of *THE CHEMIST AND DRUGGIST*, Colonial Buildings, Cannon Street, London, E.C., the envelope to be endorsed also with the number. The Publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

Dental and Surgical.

Leclanche's battery, twenty cells, 30s.; pocket, amputating, and other cases, tooth forceps. H., 5 Camden Villas, Shirland Road, Paddington, W.

To Dentists.—S. S. White dental engine and 100 bits, &c., in perfect condition, A-h's portable 3-flask wrought-copper centre-crow vulcaniser, with thermometer, spanner, packing remover, three gunmetal flasks, scarcely used, and cost 67. 8s., price 47.; new American operating room lathe, usual price 84s., price 40s.; Ash's lathe, carrying chuck, with two corundum wheels and polishing-brush and drilling-tool, scarcely used, cost 51. 5s. 6d., price 31. 10s.; Barth's economic gasometer, as good as new, cost 51. 5s., price 40s.; new 12-gallon gasometer, price 50s.; portable gas-apparatus, consisting of gas-bottle, Cattlin's bag, union, key, 2-winged stopecock, set of gags, two facepieces, leather case, almost new, cost 61. 6s. 6d., price 31. 10s.; work-room vice, 5s.; Harris' "Dental Surgery," 8s.; set of ten forceps, in case, 30s.; new Ash's, 127. 12s.; flattening mills, price 81. 8s. S. Bateman, 44 Carter Street, Greenheys, Manchester.

Barth's facepiece, medium sized, old pattern, price 7s. 6d., or exchange. Potts, Dentist, Tatham Street, Sunderland.

To be sold cheap.—Dentists' instruments, two right upper molars, two left, one key and claw, upper wisdom, upper bicuspid, two pair upper stumps, two pair upper centrals, lower molar, two pair of lower stumps, three children's forceps (total 17); two guineas the lot. Apply to "Dentist," Lavars & Son, Blackheath, Kent.

Drugs and Chemicals.

Quantity of rad. tarax. sic., dried this year; good. 76 Bridge Road, Battersea.

Some oil male fern at 6s.; 14 lbs. salicine at 9s.; 14 lbs. menthol at 35s. 10/93

Cod-liver oil, digestive tablets, soda lozenges, rhatany lozenges; what offers? cash or patents. Fowler, Chemist, Portsea.

27 1-lb. bottles of Zinc Gelsemin, at 9s. to clear, or 9s. 6d. per 1-lb. hottle. G., care of house-keeper, 7 Union Court, Old Broad St., E.C.

Ol. lavand. flor., 20 years old, 12s. 6d. per lb., or less for quantity, carriage paid, sample free. W. H. Willson, Chemist, Devizes.

Ess. cider, good, about 4 lbs., will exchange for pineapple, jargonelle, or grape; or what offers? Willis, Chemist, Stockport.

MISCELLANEOUS.

£550. Proprietorship for Salo. Dr. Sargent's Worm Powders, Hair Wash, Curative Ointment, Aperient Pills, Antibulous and Liver Pills, Teething Powders, Chlorodyne, Effervescent Salina, Neuralgia Medicine, Painless Cure for Corns, Warts, and Bunions, Hair Restorer, trademark, signature, patent medicine stamps on hand £36, electros, recipes, stereos, stock of specialties partially made up, being eleven proprietary articles, together with special government dies which cost £64. Apply, Dr. G. Sargent, Dorrell Place, Brixton Road, London.

LITERARY.—The Editor of a monthly publication connected with the Drug and Chemical Trades, desires to receive from Chemists and others well written contributions of interest, also letters and reports, regularly or occasionally, from foreign and colonial correspondents. Address, 'D. G.,' Housekeeper, 30 Paternoster Row, London, E.C.

A REGISTERED Dentist desires to make arrangements for attending at a Chemist's; half profits. 'R.,' 3 Springfield Terrace, Willesden Green, N.W.

**"THE ILLS OF LIFE."
"TOOTHACHE," "CORNS," & "CHILBLAINS."
WARRANTED CURES FOR THE ABOVE.**

These preparations are thoroughly profitable, pay well, are easily made, and may be sold with confidence. Recipes, 1/1 each; 3 for 2s. 6d., with full directions, post free. Please note my advertisement in "Exchange Column." Terms—"SATISFACTION GUARANTEED." Detailed Printed Lists free.

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Have the Largest Sale of any Medicine in the World.

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And sold at 1s. 1½d., 2s. 9d., 4s. 6d., 11s., 22s., and 33s. each Box or Pot.

Chemists and Druggists selling "Holloway's Pills and Ointment" can, on application to the above address, or to the Wholesale House with whom they deal, be supplied free of charge with Handbills and Posters with their name and address printed at foot.

Wholesale Terms see List of "Proprietary Articles" in most Price Currents.

116 lbs. pulv. acid tart., 1s. 6½d. per lb.; 4 oz. Howard's quinine for 28s. 6d.; 56 lbs. pure glycerine, 1260, 9½d. per lb.; deposits. 95/2.

Surplus stock, twenty 14 lb. jars new honey, 6d. per lb.; twenty Winchester's English ol. almonds, warranted pure, 1s. 6d.; samples sent for three stamps. Scott, Druggist, Rochdale.

Pulv. rhel opt. E. I., 2s. 1b.; pulv. aloes barb. opt., 2s. 1b.; aloes barb., 1s. 4d. lb.; pure glycerine, 1260, at 9½d. lb. (in tins); three 12-lb. tins ess. lemon opt., 6s. lb.; gum Turkey sorts, 7d. lb.; finest white Chilian honey in (about) 56-lb. tins, Bismarck brown, at 2s. 1b. S. B. Hicks, Chemist, 5 Shaftesbury Terrace, Hornsey Rise, W.

Proprietary Articles.

Three dozen Astley Cooper's pills, 13½d. at 7s. 6d. 93/10

What offers for Myer's royal cattle spice? John Roberts, Slaithwaite.

A quantity of Myer's cattle spice for sale, at 20s. per cwt. A. Chambers, Ambie, Northumberland.

Thirty-six ls., and forty-four 6d. butter powder, Holden's, Erdington, Birmingham, in fair condition; what offers? Kemp, Chemist, Chester.

Half-gallon barrel of the British and Foreign Cattle Medicine Company's cure for foot and mouth disease; price 6s. Hinkley, 17 Plungington Road, Preston.

Bradbury's dip, Spouncer's milk substitute for calves, Tomlinson's butter powder, Sand's gold paint, filter papers (16 in. diameter); offers. R. J. Young, Chemist, Banwell, R.S.O.

Quantity of shilling perfumes (Sharpes), United Service soap, oil cassia, foreign lavender oil, Leath & Ross' homoeopathic tinctures and pilules, Rossetter's restorer, in exchange for patents or cash. Fowler, Chemist, Portsea, Surplus Stock for Sale or Exchange, Cheap.—Goodall's patent mixing-machine, Halse's battery. Newman's marking-ink pencils 2s. 9d., King's pills, silver ink, Nuda Veritas Barton's rat exterminator, Bird's hotan'c ess., Ross' hair-curling fluid, and hundred other patents; list free. Wanted—tincture press, nests of drawers, jars. Chave & Jackson, Hereford.

Optical.

A quantity of good spectacles for sale or exchange, cheap. 96/25.
Six dozen spectacles for disposal, new, various sights, cheap for cash. 95/7.

Apparatus.

Avery's weighing machine, 5 cwt., excellent order, 3l. 10s. Gant, Raunds, Northamptonshire.

Electrophores. — Brass and vulcanite, 8-inch plate; new; highest cash offer. King, Chemist, Norwich.

For sale, iron mill for grinding sugar; in good condition (will grind 20 lbs. per hour; hand power). Breeze, Chemist, Devonport.

Two-gallon copper still, and vertical condenser for same, in good condition, cost 56s.; what offers? J. Babb, Chemist, Sydenham.

For Immediate Disposal, a 15 gallon copper still with worm and tub complete, to be sold a bargain. Address, 'Chemist,' P. Office, Uxbridge.

Forty-gallon iron drum, brass tap and screw-bung; has contained benzoline; offers wanted, cash or exchange. W. H. Willson, Chemist, Devizes.

Handsome triennial lime-light, dissolving view lantern, 4-in. condensers, rackwork lens, mahogany casements, new, not been used, cost 16l., sell 10l.; microscope, large, good instrument, mahogany case and accessories, nearly new, cost 10l., sell 6l.; microscopic slides, cost 12s. to 30s. dozen, sell 7s. to 18s.; Rhumkoff induction coil, 1-in. spark, English make, cost 6l., sell 4l.; also quantity philosophical apparatus, advertiser giving up studies; send for particulars. 90/24.

Educational.

Southall's Materia Medica Cabinet, quite new, cost 30s., will take 21s. Davis, Chemist, Llanidloes.

Botany.—The official plants, beautifully mounted, are now reduced to 5s. 6d. Higginson, Newberry.

Good microscopic slides, 7s. dozen, cost double; slide cabinet, 25s.; turntable section cutter and other accessories, cheap; approval on satisfactory references. Sample three slides, 2s.; diatoms, infections, botanical, insects, spicules, palates, microscope fields, 2l. 2s., bargain. Tylar, 20 Geach Street, Birmingham.

Statham's 25s. combined telescope and microscope; almost new and quite perfect; 18s. W. Dickson, 153 High Street, Southampton.

Set of illegible autograph prescriptions (original), 2s. 6d., as presented to the Pharmaceutical Society of Ireland for their examinations; 30 prescriptions (catch and difficult) given to dispense at Minor during past 12 months, 2s.; 50 questions asked of successful students at last Minor, 1s. 1d.; lot of cheap, almost new, books. Stamp for list, Saunders, Medical Tutor, 6 Rochester Square, N.W. (Note change of residence.)

Literature.

Offers for 23 vols. *Chemist and Druggist* (2 vols. lost). T. Ryan (Gilder, Bank St., Carlisle).

Blade, Otley, offers several years this journal for good pair lower curved forceps, Tomes's.

Copland's Medical Dictionary, old edition; published at 4l. 10s.; offers. Wing, Chislehurst.

Muter's "Pharmaceutical Chemistry," scarcely soiled, 9s. Heath, Medical Hall, Kidderminster.

Rhind's "Vegetable Kingdom," nearly new, cost 31s. 6d., for 20s., or exchange latest edition of "Atfield" (or "Bentley"), and cash. Curtis, 14 Vear Street, Kidderminster.

Pharmaceutical Journals, from 1841 to 1882, inclusive, unbound; 1845-51-55-60-63-65-67 missing; what offers for all or part? J. Babb, Chemist, Sydenham.

A lot of standard well-known scientific and educational works, indispensable for Prelim. Jacob Bell, Minor, &c., to be sold cheap. Send stamp for list. A. P. N., 8 George Street, Bath.

For sale cheap, post-free, a small collection of books on chemistry, botany, and kindred sciences. List on receipt of stamped envelope. H. Brunton, 13A Dean Street, Soho, London. Wanted really good books on zoology and botany.

Roscoe's "Chemistry," 1s. 6d.; Luff's "Introduction to Study of Chemistry," 1s. 6d.; Garrod's "Materia Medica," 6d.; Cooke's "Botany," 6d.; Wills' "Handbook of Analysis," 1s. All no worse than new. Davis, Chemist, Llanidloes.

Soda-water Plant.

Barnett & Foster have some second-hand soda-water machinery of their own for sale. Apply, 26t Eagle Wharf Road, Hoxton, N.

Second-hand soda-water plant—several in stock. Address, Bratby & Hinchliffe, Sandford Street, Ancoats, Manchester.

Shop Fittings.

Three 2-gallon show carboys, similar fig. 1 Maw's, plain stoppers, 15s.; or exchange. W. H. Willson, Chemist, Devizes.

A mahogany counter-stand, with two flat and one sloping shelves. Particulars and price of Sangster, Chemist, High Street, St. John's Wood.

Three reflectors for lighting up shop window, cost £6, price 50s., almost new; also a half-gallon iron tincture press, price 10s. 6d.; Hutchinson, 8 Wheeler Gate, Nottingham.

Three carboys, cut stoppers, handsome mahogany octagon stands, six inches high, 4-gallon, with iron rails and ornamental supports with iron, worth 13l.; price, 5l. J. Ashton, 21 Barlolph Road, N.

300 drug drawers for sale cheap; first-class second-hand dispensing-counter and plate-glass screen, 7 ft. long, 5l. 10s.; one 12 ft. side of shop, and a surgeon's cabinet; must be cleared out. B. & G., 22 Gun Street, Brushfield Street, Bishopsgate, London.

The entire superior fixtures of several chemists' shops for disposal, made to fit any shop. This is a favourable opportunity of having a superior shop fitted at a moderate price, and all finished off equal to new work. Lloyd Rayner, 10A and 46 De Beauvoir Crescent, Kingsland, London, N.

20 4-oz. blue pill jars, white rims and knobs, 5s.; pill machine for 24, 12s.; standard dispensing scale, brass on mahogany box, 5s.; iron mortar, 7 inch, 3s.; 500 gallon oak vat. Particulars by post. Several 2-gallon tincture carboys, 1s. each. 17 quart natural Vichy water, good condition, 7s. the lot. Howard's quinine, 8s., in 4-oz. bottles. Floyd, Bury St. Edmunds.

14 ft. long superior Treble's wall-fitting, 91 mahogany drawers, glass labels and cut knobs, mahogany lockers under, coverboard, shelving and cornice above, 9 ft. high; one 12 ft. long, one 10 ft. long ditto; 25 nests mahogany-fronted deal dovetailed gold-labelled shop-drawers, all sizes; 15 handsome mahogany dispensing-case screens, all designs and sizes; 6 upright cases, with and without desks; superior show cases, A 54, 55, 56; A 41, 42, 43; A 4, 5, 8, 12, 15, 18; A 9, 10, 31, 32, Maw's; quantity counters, and warehouse and counter draws; quantity spirit jars and carboys, show jars, fig. A, C, D, Maw's; quantity deal stained mahogany gold labelled shop drawers. Lloyd Rayner, 10A and 46 De Beauvoir Crescent, Kingsland, London, N.

Second hand stock.—Counter and upright case, as Maw's A 4, 42 in. long, 25 in. wide, 23 in. high, no carving, 6l.; Spanish mahogany dispensing screen, plate-glass sashes and tablets, pilasters and trusses, own make, 107 in. long, 23 in. high, 7l. 10s.; mahogany external doors, plate-glass, shutters, fanlight, 88½ in. high, 43 in. wide, 3l.; mahogany shop-front sash, 139 in. long, 111½ in. high, 30s.; counter-case, 30 in. by 24 in., 10s.; ditto, 25½ in. by 12 in., 5s.; plate-glass fascia, "Pharmaceutical Chemist," embossed black ground, 146½ in. long, 14 in. high, 3l. 10s.; 20 1-gallon black uprights, 10s.; 26 3-pints, labelled, 28s.; 4 3-gallon cylinders, 20s.; 21 1-lb. drah pots, new, 18s.; 16 8-oz. ditto, 7s. 6d. Hawke & Son, Wild Court, Great Wild Street.

Formulæ.

Liquid dentifrice complexion wash, winter formula, 5s. doz. Pamphlets and bills for chemists drawn up. 90/16.

Scotch marmalade, costing about 2½d. per pot; formula thirteen stamps. "Devonensis," Broadthampton, Totnes.

Gonorrhœa in all its stages and complications successful treatment, 2s. 6d.; also, primary, secondary, and tertiary syphilis, 2s. 6d.; menthol cones, relieve toothache, tic, neuralgia, and sciatica instantly; Parrish's chemical food, syrup hypophosphites (equal to Fellow's), 1s. 6d. each. Address, "Surgeon," Hebburn-on-Tyne.

Special Recipe.—I can offer an invaluable recipe for "Balsamic Cough Linctus" (containing neither opium, morphia, nor any narcotic), of the virtues of which I hold many excellent testimonials. It is a most elegant preparation, brilliant appearance, keeps well, resembles Crosby's Elixir, and costs under 7d. per lb. As the recipe is only sold to one chemist within a 10-miles radius, please write for information, and sample will be sent if district is open; price, with guarantee and full instructions, 10s. All communications strictly confidential. T. Brooks, Chemist, Louth, Lincs.

"Glycerine Cream," a most elegant preparation for chapped hands and roughness of the skin. It has a soothing emollient action; one dressing will prove its worth. Whilst possessing all the virtues of glycerine, it may be used without inconvenience, it rapidly dries in, and gloves may be worn immediately after its use. A lady purchaser writes:—"Your Glycerine Cream is the nicest and most useful preparation I ever used. My hands were in a fearful state, but three applications of the Cream completely cured them. It surprises me you have not a London agent." Recipe 1s. 1d., or with others in my list, 3 for 2s. 6d., free. T. Brooks, Chemist, Louth, Lincs.

Formulae for the following successful preparations, recommended with confidence—the confidence of experience. "Quinine and 1 on Tonic," "Glycerine Jelly," "Toothache Tincture," "Senegal Cough Syrup," "Foaming Liquid Dentifrice," "Hair Restorer," "Lavender Water" (excellent). "Cod liver Oil Emulsion," "Grape-juice Saline," "Horse Bister," "English Eau de Cologne," "Kalydor," "Taraxacum and Podophyllin," "Perfect Writing Ink" (sine galli or iron). "Depilatory Powder," "Milk of Roses," "Marking Ink," "Styptic Colloidion," "Corn Solvent" (like celandine). "Soluble Ess. Guger," "Dalby's Carminative," "Hooper's Female Pills," "Erasmus Wilson's Hair Lotion," "Currie Powder," "Pot Pourri" (very rich), "Brilliantine," "Miscible Brilliantine." Price 9d. each, 3 for 2s., 6 for 3s. 6d. W. Stewart, 39 French Street, Southampton.

Well-tried recipes of preparations in daily demand:—"Corn and Wart Eradicator" (similar to Hargreave's), never fails, painless, cleanly, may be sold with confidence, always gives satisfaction; "Hooping-cough Syrup and Embrocation," certain cure, rapid action, no dangerous ingredients; "Blood Cleanser," superior to any advertised preparation, without the danger attending many; "Physician's Prescription for Spermatorrhoea," and kindred diseases, hundreds of cases have been cured by this remedy; "Mist. Bismuth. Alb.," excellent for rapidly curing indigestion, vomiting, dyspepsia, &c., an elegant preparation; "Ringworm Specific," two or three applications will cure the worst case; "Tic Pills," most reliable and commendable when all else has failed; "Itch Ointment," improved form of old-fashioned popular unguent, disinfectant and deodorant; "Chlorodyne," equals Brown's in every respect, freely miscible with water, easily made; "Ess. Sennae Dulc.," non-gripping aperient for children and adults, keeps well, 10d. lb.; "Peruvian Gout and Rheumatic Pills," preferred by many to Blair's, recommended with much confidence; "Quinine and Iron Tonic" (like Pepper's), bright and unchangeable, warranted excellent; "Anti-Cholera Drops," certain preventive of diarrhoea, infallible in cramp; "Podophyllin, Aloes, and Taraxacum," for all liver derangements and dispersing bile; "Essence of Deafness," simplest, safest, and most reliable remedy ever advertised; "Hair Producer," warranted to produce a healthy growth and strengthen weakly hair. Recipes, 1s. 1d. each, six for 5s., post free, with full directions for making doses and all necessary information. T. Brooks, Chemist, Louth, Lincolnshire. N.B.—Recipes not approved of may be returned. Detailed lists post free on application. By kind permission foreign orders may be transmitted through the Publisher of this journal. T. Brooks, Chemist, Louth, Lincolnshire.

Fragrant foaming dentifrice (like "Floriline"); marking ink, *sine silver* (aniline), writing executed defies chemicals; effervescing fruit saline (resembles Eno's); magio neuralgic drops (never-failing remedy); quinine and iron tonic (resembles Pepper's); lime-juice and glycerine (inseparable, white as milk); blue-black ink (non-corrosive, *sine iron* or galls); cherry tooth paste (never ferments, like Gosnell's); brilliantine (inseparable, like Rimmel's); pill-coating, (pearly white, no mucilage or mastic used); glycerine jelly (perfectly transparent); crimson marking-ink; hair-restorer (colourless, no deposit, *sine silver*); aromatic vinegar; toilet vinegar (as Rimmel's); plate-powder (like Stevens' "Silicon"); Oleum Flavam Conc., for pomades (colour stable); soluble essence ginger (like Hay's); corn solvent, clear (not acid); liquor copaiba comp. c. buchu et matico (mixes clear with water); gonorrhoea paste, excellent (Dr. Ricord's); taraxacum and podophyllin (resembles Pepper's); with many others; send stamp for list, stating wants. The toilet preparations are identical with those prepared by a wholesale West-end firm; others equally good; all inexpensive to make; 5s. each (five for 1l.). Readers are cautioned against cheap and worthless imitations. I was first to advertise formulae in this journal. "Analyst," care of Mr. Warnes, 6 Rochester Square, N.W. (Note change of address.)

Miscellaneous.

A fine old Italian violin, splendid tone and good preservation. Webb, Chemist, Calne.

Sale or exchange magic lantern slides; cheap and good. Apply Piggott, Huddersfield.

Bottles.—About 100 gross $\frac{1}{2}$ -oz. and $\frac{1}{4}$ oz. green glass, cheap. S. F. & Co., 1A Shacklewell Lane, N.

Rayner's Lime Fruit Syrup, pints and quarts; what offers? 1 gross assorted mineral waters; send for list. Harvey, Margate.

About 150 gross Aire Calder pellets (vial corks), cost 1d. to 3d. gross; $1\frac{1}{2}$ d. gross for lot; 2d. 25 gross, assorted. Campkin, Chemist, Cambridge.

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Ten cases Carlsbad water, 30s.; twelve dozen Leeming's essence, 12s.; eight dozen tumblers, fig. 41, 3s.; five thousand Turkey and honeycomb sponges, half cost. Write for list. Day & Co., Herne Hill, S.E.

3 1s. $1\frac{1}{2}$ d. chest beaters (Hall's), 7d. each; 2 2s. 9d. ditto, 1s. 7d. each; 8 large tea canisters, beautifully gilt, painted green and gold; 1 pair brass scales, mahogany bottom, with scoop for ten; to be sold cheap. Dyson, Chemist, Bacup.

Two six-gallon carboys, pear shaped; mahogany tooth-brush case, plate-glass front and shelves, mirror-backed; quantity of perfumes, puff-boxes, druggists' sundries and patents. Send for list; no reasonable offer refused. Address Brewitt, Diss.

Urinary test stand, mahogany, shape as Maw's fig. 7, with drawer, and fitted with six 1 oz stoppered bottles, 6 test-tubes, spirit-lamp, urinometer, and grad. test-glass, quite new, 18s.; 1 gallon Sanitas, 3s. 6d.; Schacht's syrup ciuchonea, 4s. per lb.; Cocking's piping machine, used twice, cost 50s., sell 25s.; emp. cantharid., good condition, 2s. 6d. per lb. Apply, Coley, Chemist, Stroud.

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Iron pestle and mortar, large. Wing, Chislehurst.

Cooley's "Cyclopaedia Practical Receipts," last edition. Richardson, Chemist, Dudley.

Good old collection foreign stamps. C. Ellison, Clarence House, Wood Green, London.

Shop lamp (outside). Apply Crooke, Moseley Road, Birmingham.

Two secondhand mahogany shop chairs in good condition. Taylor, Chemist, Rugby.

Set 15 Tomes's tooth forceps, in good condition. J. J. S., Medical Hall, 163 Piccadilly, W.

A good set of tooth instruments, must be cheap. Treharne & Duck, Docks, Cardiff.

Swan-necked show carboys, three secondhand, Apply Anderson, Chemist, Musselburgh.

Mill for crushing linseed, hand power. Hambridge, Chemist, Highworth.

Wide mouth stoppered-bottles, 1 lb.; new or secondhand, white glass; cheap. Feaver, Hawkhurst.

Tincture press, patent medicines, counter top, druggists' sundries. Fowler, Chemist, Portsea.

Remington still in exchange for Cocking's five-grain pill machine. W., 74 Market Place, Sheffield.

"Culpepper's Herbal," with coloured plates. State price to Percy Wells, 50 Elgin Crescent, W.

Cooper's dipping machine; must be cheap. Apply Mr. Barton, care of Mr. White, Chemist, Chippenham.

Mahogany wall case, 8 or 9 feet long. Give full particulars. Briggs, Chemist, Woodhouse Lane, Leeds.

Pillar dispensing scales, must be in good condition and cheap. Particulars and price to Smart, Woolwich Common.

Acid, pyrogallie (Schering's), potass. cyanid, and numerous photographic chemicals. Adams, 74 Oxford Street, Salford.

Square iron tanks, jacketed pan, acid carboys, rotary or other pumps. J. W. Adams, 74 Oxford Street, Salford.

Six clean oil bottles, with jappaned caps; also pair of scales, 2 lbs.; French pattern, good condition. Particulars to Jenner, Chemist, Meeting House Lane, Peckham.

Recipe for an article similar to Brown's satin polish, or Houthaway's peerless glass; must be good. Lowest price, with sample, to R. Henderson, 150 Hornsey Road, London, N.

Watts' "Dictionary of Chemistry," any vols.; Ure's latest "Scientific Dictionary Analyst," any vols.; Griffiths' "Micrographic Dictionary." Lowest prices, &c. be stated to Clay, 2 Teviot Place, Edinburgh.

Large mortar and pestle not less than 15 inches diameter and $6\frac{1}{2}$ inches deep, either composition or enamelled iron, in good condition. Golding, Albany Street, London, N.W.

In good condition two 6-gallon show carboys (old shape), or 2 specie Jars about 28 by 16; Welgwood mortar and pestle, diameter 13 or 14 inches; 1 doz. 8-inch shop jars, Ilac. J. B., 344 Mare Street, Hackney.

Latest editions, cheap. Bentley 7s. 6d. "Botany"; Muter's "Analytical Chemistry"; Flueckiger's "Pharmacographia"; Bentley and Redwood's "Elements of Materia Medica"; Roscoe's "Elementary Chemistry." Address D. C., 53 Upper Warwick Street, Liverpool.

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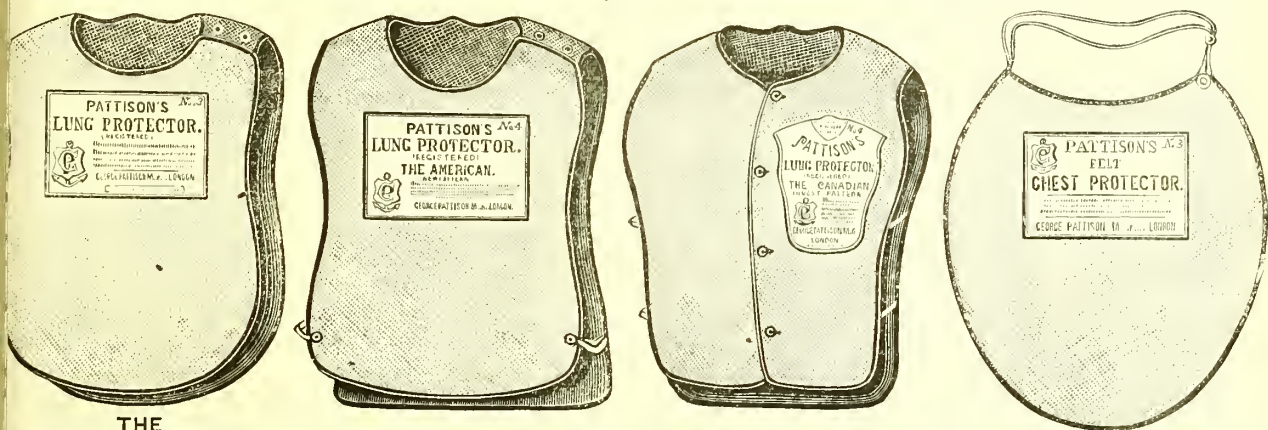
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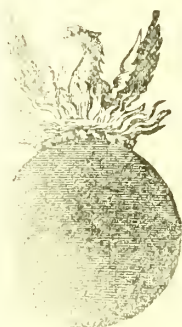
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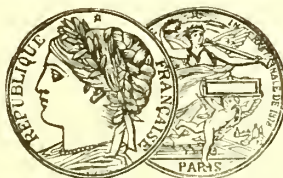
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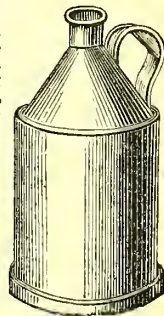
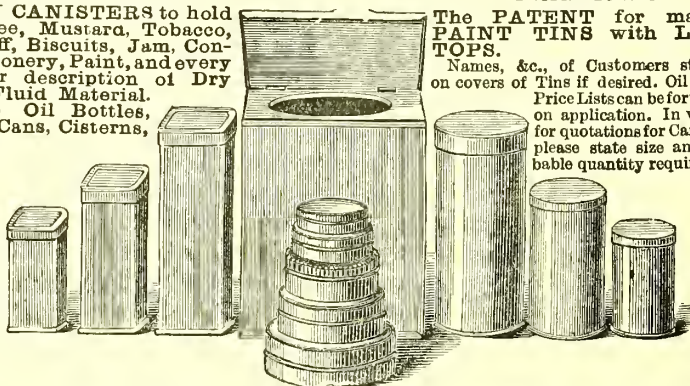
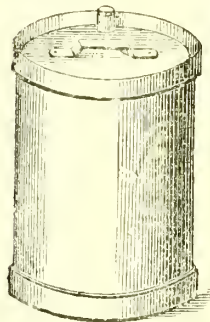
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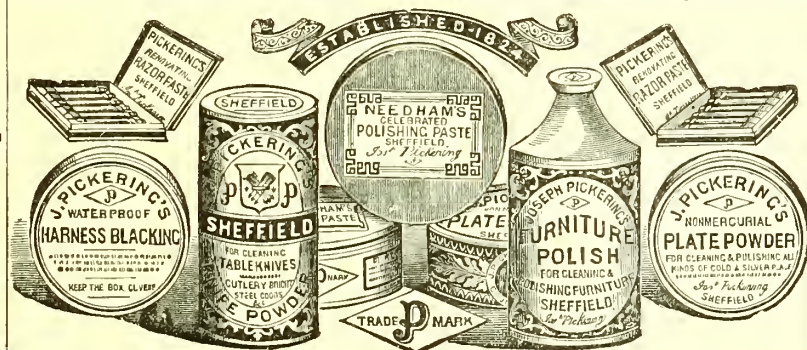
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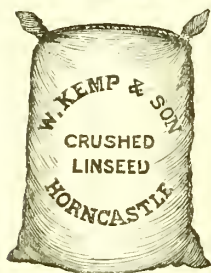
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Strength per cent.	Specific Gravity.	Price per gallon
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60 " "	0.8298	20/4
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Fig. 2. For Mineral Waters and Gaseous Liquids,
Are now used by upwards of 900 Soda Water Manufacturers
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PRICES (Per Gross).—Patent Stopper, as per Fig. 1, 4/6; ditto, as Fig. 3, 4/6; ditto, as per Fig. 4, 4/6; Patent Stoppered Bottles, ready for use; ditto Half Bottles; ditto; Patent Unstoppered Bottles; ditto Half Bottles; Fig. 9 Boxwood Bottle Openers, polished, 8/6; ditto, fitted with rubbers, 10/6; Common Wood Bottle Openers, 5/6; ditto, fitted with rubbers, 7/6; Fig. 10, New Bottle Opener, 6/-.

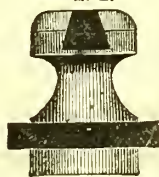
ROYALTY FREE.**Fig. 1.****Fig. 3.**

Fig. 1 Stoppers, when invoiced separately, are ready fitted with the rubber washer on, and are easily inserted into the Bottle by the simple pressure of the thumb, the washer at the same time folding in the hollow part of the stem when passing into the Bottle. It is the only Stopper which requires no tool to fit the Bottle with; and when a Bottle breaks, which seldom occurs, the Stopper is always fitted with this washer, ready to be inserted in a new Bottle. Therefore it is the most durable and inexpensive Stopper in the trade.

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It having come to my knowledge that certain parties conversant with the great and acknowledged superiority of my Patent Stopper, have so re-modelled them so as to constitute a clear case of infringement upon my rights, I wish it to be known that I intend to take such steps against the said parties as may seem desirable, should this notice not be effectual.

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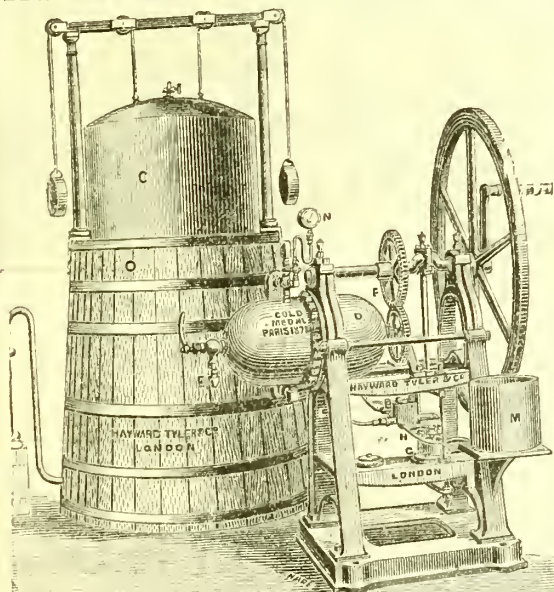
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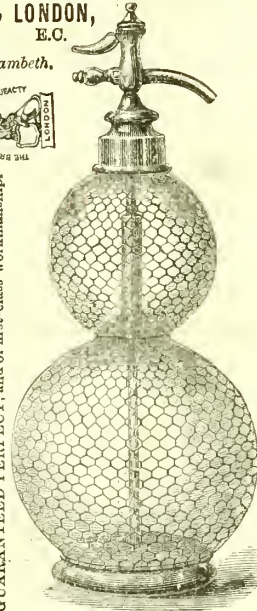


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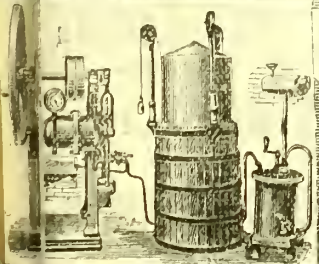
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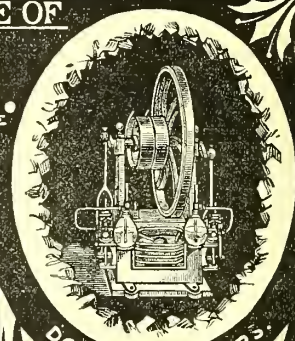
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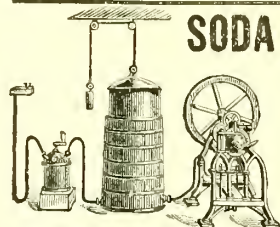
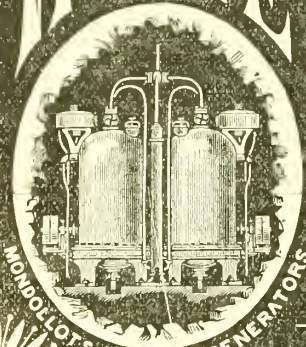
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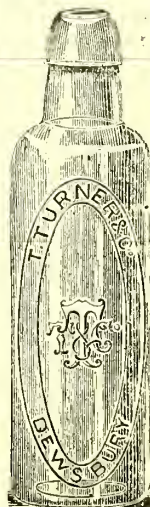
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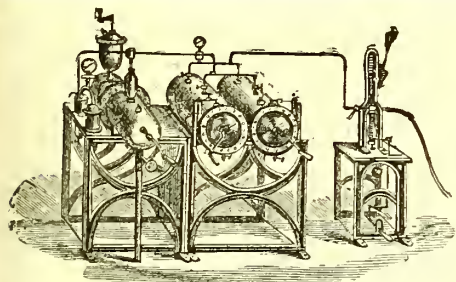
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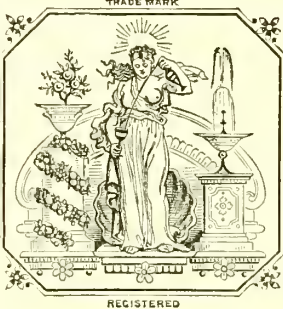
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- 12.—Because Seltzogenes of first quality can, when required, be obtained for members at a liberal discount.
- 13.—Because about 750 Chemists ask you to join with them.
- 14.—Because the larger the combination, the larger the dividends.
- 15.—Because all NATURAL MINERAL WATERS can now be purchased through the Association at *cheaper rates* than can be procured elsewhere.

Z O E D O N E.

London Offices:—80 COLEMAN STREET, E.C.

A complete change having been effected in the management of the above-mentioned Company, the new Board of Directors take the earliest opportunity of informing their customers that the Company are now prepared to execute orders for Zoedone on the following terms:—Monthly Accounts, or 2½ per cent. Discount (off prices of Zoedone only) for Cash with order—

	s.	d.	£	s.	d.		s.	d.	£	s.	d.
Large Champagnes—per 3 doz. case...	12	0				Small Champagnes—per 3 doz. case...	8	3			
Case, Bottles, and Laths ...	5	0	0	17	0	Case, Bottles, and Laths ...	3	0	0	11	3
Packed for Export, 8d. per doz. extra.						Packed for Export, 4d. per doz. extra.					
Small Champagnes—per 6 doz. case...	15	0				Champagne Splits—Terms forwarded on application.					
Case, Bottles, and Laths ...	6	0	1	1	0						

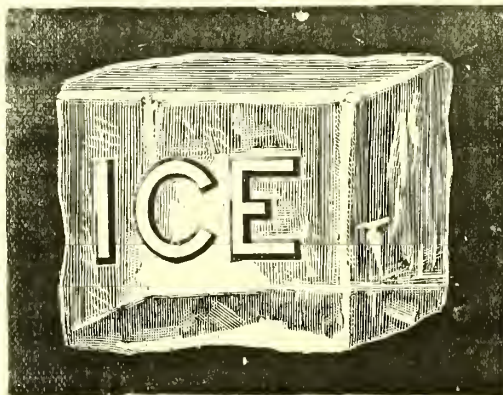
Carriage will be paid by the Company to any railway station in the United Kingdom.

The full charge for case, bottles, and laths will be refunded by the Company on their being returned in good condition, and carriage paid to Wrexham, the average cost being about 2d. per dozen.

ALL ORDERS TO BE ADDRESSED TO THE MANUFACTORY, WREXHAM.

FOREIGN MINERAL WATERS.

FREDERICKSHALL (5 Cases, 6d. per Case less), 24/ Case, 30 bot.; 39/ Case, 60 ½-bot.
 APOLLINARIS WATER, 25/- Hpr., 50 bts.
 " 39/- Hpr., 100 ½-bts.
 " Carriage paid. Hampers free.
 5 per cent. discount if 20 Hampers.
 HUNYADI JÁNOS (10 Cases, 3/- and 5/- less), 30/- Case, 50 bts.; 59/- Case, 50 ½-bts.
 BELTZER ... 11/- Hpr., 25 bts.
 " 15/- Hpr., 50 ½-bts.
 FULLNA ... 18/- Case, 20 bts.
 " 30/- Case, 50 ½-bts.
 VICHY ... 31/- " 50 bts.
 " 27/- " 50 ½-bts.
 CARLSBAD ... 37/- " 50 bts.
 KISSENGEN ... 42/6 " 50 "
 SCHWALLBACH ... 27/6 " 50 "
 HOMBURG ... 40/- " 50 "
 WILDUNGEN ... 43/- " 50 "
 CARLSBAD'S ALTS, ½-Bots., 20/- per doz.; ½-Bots., 40/- per doz.; Bot., 80/- per doz.



NORWAY BLOCK ICE

FROM FINEST LAKES IN
CHRISTIANIA.

Professor Frankland's report with analysis:—
 "The Ice is exceedingly pure, and contains less foreign matter than any water with which I am acquainted in this country."

Original Blocks
 (2 to 3 cwt. each) 2s. 0d. per cwt.
 1 cwt. to 2 cwt. ... 2s. 6d. per cwt.
 ½ cwt. to 1 cwt. ... 1d. per lb.
 Under 1 cwt. 1d. per lb.
 Packing free. Utmost promptitude in despatch.

W. B. HARRISON,

Importer of Ice and Mineral Waters,

6 BRIDGE ST., SUNDERLAND.

REGISTERED AT STATIONERS' HALL.

JEWSBURY & BROWN'S MANCHESTER MINERAL WATERS,

**PURE SODA, SELTZER, POTASH, LITHIA, &c.,
LEMONADE,
GINGER ALE, AND QUININE TONIC.**

Prepared and Bottled specially for Export, and warranted to keep well.

Manufactured with the utmost care and by improved machinery, these productions are recommended for **purity and excellence of quality** by many leading members of the Medical Profession, and have for many years had a preference by the public; the flavour of the **Lemonade and Ginger Ale** being procured from the **fresh Fruit and Finest Jamaica Ginger**, they may be relied upon as furnishing delicious and satisfactory beverages, either for general use or specially for invalids.

The **Soda Water** is absolutely free from any metallic impregnation, and being by improved machinery highly charged with Carbonic Acid Gas, and each bottle containing a definite and unvarying proportion of **Pure Carbonate of Soda**, J. & B. have every confidence in inviting a trial from those who have not already patronised them.

The **Seltzer, Potash, and Lithia Waters** are prepared with the utmost exactitude and the purest ingredients.

The **New Quinine Tonic** furnishes a pleasant form for the administration of a most valuable restorative, and is refreshing and agreeable.

Ginger Ale (Aromatic) of superior quality, and strongly recommended as a Non-Alcoholic and warm stimulant beverage.

N.B.—Every Bottle is protected by a distinctive Label, with Name and Trade Mark, and each Cork is branded.

Counter Bills and Analytical Reports, with Agents' Names and Addresses, supplied when requested.

JEWSBURY & BROWN, 44 Downing Street, 3 Grosvenor Street, and 113 Market Street, MANCHESTER.

SOLE WHOLESALE AGENTS FOR THE DOMINION OF CANADA: A. C. SMITH & CO., ST. JOHN, NEW BRUNSWICK.

CANTRELL & COCHRANE'S CELEBRATED AROMATIC GINGER ALE, SPARKLING MONTSERRAT, CLUB SODA, AND MINERAL WATERS,

As supplied to Her Majesty's Imperial Houses
of Parliament,

Have been Awarded **TWENTY GOLD AND
PRIZE MEDALS** at the various International
Exhibitions.

*Goods for Export are specially prepared, and are guaranteed
to keep in any climate.*

PRICES AND TERMS ON APPLICATION TO—

**CANTRELL & COCHRANE,
BELFAST AND DUBLIN.**

BINGLEY'S SUPERIOR Ginger Ale.

After numerous experiments the Proprietor is enabled to offer a beverage which is considered by many to be one of the *very best* of its kind.

It is manufactured especially for sale by Chemists doing a family trade.

COMPARISONS ARE INVITED.

Samples may be obtained gratis, also trade terms, on application to

J. BINGLEY, NORTHAMPTON.

Caution

W. A. ROSS, the Original Patentee and Maker of
The Celebrated Belfast Ginger Ale, cautions
the Public that the "GENUINE" can only be had at

*Ross's Royal Ginger Ale
AND
Aerated Water Works Belfast.*

NAME ON CORK, CAPSULE, AND LABEL REGISTERED.

EXPORT ORDERS HAVE SPECIAL ATTENTION.

Persons using Aerated Waters should try Ross's, otherwise they will never know to what perfection Aerated Waters can be brought.—*Canterbury Journal of Commerce*, 17th June, 1882.

A CERTIFICATE OF MERIT, for superiority of quality, was awarded to Jewsbury & Brown at the Exhibition of Sanitary Appliances, at Owens College, Manchester, on the occasion of the Meeting of the British Medical Association, August, 1877.

A CERTIFICATE OF MERIT awarded by the British Sanitary Institute of Great Britain, after a deferred PRACTICAL TRIAL AND EXAMINATION, July 4th, 1879.

MONTSERRAT LIME FRUIT JUICE & CORDIAL

FOR SUMMER AND WINTER USE.

(In Summer mix with cold water; in Winter, with water as hot as it can be taken.)

ADVERTISED ALL OVER THE WORLD!

Montserrat Pure Lime Fruit Juice.
Montserrat Limetta, or Pure Lime Juice
Cordial.

Montserrat Aromatic Lime Juice Cordial.
Montserrat Clove Lime Juice Cordial.

Montserrat Jargonelle Lime Juice Cordial.
Montserrat Raspberry Lime Juice Cordial.
Montserrat Strawberry Lime Juice Cordial.
Montserrat Quinine Lime Juice Cordial.
Montserrat Sarsaparilla Lime Juice Cordial.

100,000 GALLONS OF LIME JUICE IMPORTED ANNUALLY!

CHEMISTS SHOULD MAKE THIS A SPECIAL LINE.

The Montserrat Lime Juice enterprise was established by the philanthropist Edmund Sturge to provide work for the liberated slaves

CAUTION!

THE GREATEST CARE should be observed that "MONTSERRAT" LIME-FRUIT JUICE and CORDIALS only are supplied, as there are numerous concoctions sold under the name of Lime-Juice Cordial that are entirely artificial, or so charged with deleterious acid as to be injurious to health. The Consignees call attention to the following letter:—

"Whereas the great popularity which has been attained by the Montserrat Lime Fruit Juice grown on the estates of the Montserrat Company in the West Indies, of which Evans, Sons & Company, Liverpool, are the Sole Consignees, has led unprincipled persons to endeavour to use the name of our family in connection with other and inferior Lime or Lemon Juice which they sell, I think it necessary to state that the whole of the raw Lime-Fruit Juice from the estates which were established by me, and are now carried on by the Montserrat Company, is, and has been for the last twelve years, consigned to Evans, Sons & Co., of Liverpool.

London, April, 1883.

"(Signed) EDMUND STURGE."

BOTTLED ONLY
BY

EVANS, SONS & CO., LIVERPOOL,

SOLE CONSIGNEES OF THE
MONTSERRAT CO. (Limited),

EVANS, LESCHER & WEBB,
London.

H. SUGDEN EVANS & CO.,
Montreal, Canada; and Boston, U.S.A.

N.B.—No Lime Juice can be Montserrat unless bearing the Trade Mark on Capsule as well as Label of each Bottle.

SUITABLE FOR ALL CLASSES IN ALL CLIMES!



SUITABLE FOR ALL CLASSES IN ALL CLIMES!

A NOVELTY!

MONTSERRAT LIME-JUICE SAUCE.

FOR ALL CLIMATES AND ALL PALATES.

The Strongest and most Delicately-flavoured Sauce, and the Cheapest.

Usual 2s. size for 1s.

MADE ONLY
BY

EVANS, SONS & CO.

the Sole Consignees of the
Montserrat Co. (Limited),

56 HANOVER STREET, LIVERPOOL.

EVANS, LESCHER & WEBB,
London.

H. SUGDEN EVANS & CO.,
Montreal, Canada; and Boston, U.S.A.

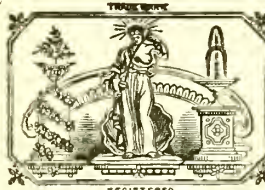


HONOURABLE MENTION,

International Food Exhibition, Agricultural Hall, London, October, 1880.

**HAY'S
SOLUBLE ESSENCE
OF
JAMAICA GINGER**

(Guaranteed Pure and Free from Capsicum).

Trade Price, 5s. per lb.; 12 lbs. and upwards, 4s. 6d.Highly adapted for the manufacture of *Transparent Aërated Waters*, and for all *Dietetic, Medicinal, and Pharmaceutical* purposes.**Medical Opinions on****HAY'S Soluble Essence of Ginger.**"Singulantly free from resin."—*The Lancet*."It should entirely supersede the official preparation of the British Pharmacopœia."—*Medical Press*.**Medical Opinions on****HAY'S Ginger Champagne.**"An excellent and most agreeable beverage."—*The Lancet*."Made by Mr. HAY, of Hull, with his well-known Soluble Essence of Jamaica Ginger, takes rank as a pure, wholesome, stimulating, and non-alcoholic beverage."—*British Medical Journal*.**HAY'S Ginger Ale.**"It pours out with as fine a 'head' as any glass of ale, and possesses all the fine aromatic flavour of the pure ginger, without any trace of the stickiness which so often characterises inferior makes of ginger-beer. It is a beverage which is sure to win favour wherever introduced."—*The Chemist and Druggist*.**Medical and other Opinions on the
Ginger Beer made from HAY'S Soluble Essence.**"An excellent effervescing drink."—*The Lancet*."Preferable to some wines we have tasted under the name of champagne."—*Medical Press*."Clear and transparent, and very pleasing to the palate."—*Medical Times and Gazette*."Has the purest Jamaica Ginger aroma, and ought to attain great popularity."—*The Chemist and Druggist*.**THE COMPOUND ESSENCE**

(Guaranteed Pure and Free from Capsicum).

This Essence, which is an addition of **VANILLA, LEMON, and OTHER FLAVOURS** to the above, is strongly recommended for the manufacture of **Ginger Beer, Wines, &c.**, to which it imparts with the **Ginger a Peculiarly Fine Fruity Flavour and Aroma.****Trade Price, 5s. 6d. per lb.; 12 lbs. and upwards, 5s.****THE COMPOUND FORTIFIED ESSENCE**Specially adapted for the Manufacture of the **FINEST****GINGER ALE.**This Essence is strongly recommended for the manufacture of the finest **Ginger Ale and Ginger Beer**. It imparts, with the exquisite **Ginger Aroma** of the first-mentioned Essence, a peculiarly fine fruity flavour combined with the fullest amount of fragrance and pungency.**Trade Price, 5s. 6d. per lb.; 12 lbs. and upwards, 5s.****HAY'S GINGER ALE ESSENCE,****HIGHLY CONCENTRATED.***This Essence is a complete Bouquet of the finest Ginger, Lemon, and other flavours, in a highly concentrated state.***Ginger Beer and Ginger Ale** made with this Essence will possess an amount of **Aroma, Flavour, and Quality** that have hitherto been without precedent, and that will be sure to command a large sale.**THE COST IN MANUFACTURE IS ABOUT ONE FARTHING PER DOZEN BOTTLES.****Trade Price, 9s. per lb.; 12 lbs. and upwards, 8s. 6d.****GINGER ALE EXTRACT****SUPPLIES PUNGENCY, AROMA, COLOURING, AND FLAVOURING**This Extract is strongly recommended for the manufacture of **Ginger Ale**, to which it imparts an unusually **Fine Flavour** and **Great Brilliancy**, at a cost of a little under 1d. per dozen bottles.**Trade Price, 4s. 6d. per lb.; 12 lbs. and upwards, 4s.**

PREPARED BY

W. HAY, Manufacturing Chemist, BEVERLEY ROAD, HULL.**Agents—Messrs. HEARON, SQUIRE & FRANCIS, Wholesale Druggists,
5 COLEMAN STREET, LONDON, E.C.****W. HAY CAUTIONS THE TRADE** against the use of those spurious so-called **SOLUBLE ESSENCES** which, besides having **NO GINGER AROMA**, are **FLAVOURLESS, RANK, and DISAGREEABLE**, and are little more than **TINCTURES OF CAPSICUM**.

NELSON'S EXTRACT OF MEAT.

CHEAPEST IN THE WORLD.—HALF THE PRICE OF LIEBIG.

OUNCE PACKETS, 4d. EACH.

"RAMORNIE," LIEBIG'S EXTRACT OF MEAT.

REDUCED PRICES!!!

7-lb. Tins	per lb.	5/11	each	41/5
1-lb. Jars	"	6/2	per doz.	74/0
1-lb. Jars	"	6/4	"	38/0
4-oz. Jars	"	6/7	"	19/8
2-oz. Jars	"	7/0	"	10/6
1-oz. Jars	"	7/8	"	5/9

Write for Detailed Price List to the Australian Meat Co., 9 & 11 Fenchurch Avenue, E.C.

10 lbs. Carriage Free.

KREOCHYLE BARFF AND WIRE. LIQUID MEAT. SPECIALTY FOR INVALIDS.

To be obtained of Messrs. BARCLAY & SON, Farringdon Street, Messrs. ROUSE & CO., Wigmore Street, Messrs. BURGONNE, BURBIDGES & CO., Coleman Street, Messrs. NEWBERRY & SON, King Edward Street, of all principal Chemists, and of "THE KREOCHYLE COMPANY," BIRKBECK ROAD, LEYTONSTONE, E.

Prices—Retail, 5s. per pint; 2s. 9d. per half pint; 1s. 6d. per quarter pint.

E. LAZENBY & SON (6 EDWARDS STREET, PORTMAN SQUARE.) Sole Proprietors of the Celebrated Receipts and Manufacturers of the Pickles, Sauces and Condiments so long and favourably distinguished by their name, beg to remind the public that their labels are affixed to the choicest description of goods only, that every article prepared by them is guaranteed as entirely unadulterated and may be obtained of Grocers, Italian Warehousemen and others.

HARVEY'S SAUCE.—CAUTION.—The admirers of this Celebrated Sauce are particularly requested to observe that each bottle bears the well-known label signed "ELIZABETH LAZENBY"; this label is protected by perpetual injunction in Chancery of the 9th July 1858 and without it none can be genuine.

18 TRINITY STREET, LONDON. S.E.

Elizabeth Lazenby

SPECIAL NOTICE & CAUTION.

BRAND & CO.

The Original Manufacturers of Essence of Beef (green label under wrapper), and other Specialities for Invalids, have

NOT REMOVED

From their SOLE ADDRESS, No. 11
LITTLE STANHOPE STREET, MAY-
FAIR, W., and caution the trade to

BEWARE of IMITATIONS.

BRAND & CO'S
ESTD 1835
SPECIALTIES FOR INVALIDS
ESSENCES OF BEEF, MUTTON, VEAL & CHICKEN,
BEEF TEA, TURTLE SOUP & JELLY,
MEAT LOZENGES &c.
SOLE ADDRESS
No. 11,
LITTLE STANHOPE
STREET,
MAYFAIR, W.

NESTLE'S MILK FOOD.

THE

'PERFECT FOOD FOR INFANTS.'

NESTLE'S MILK FOOD is prepared at Vevey, Switzerland, from the pure milk of Alpine cows, the finest wheaten flour and sugar, combined in exact proportions to imitate closely the natural food for infants. It is thoroughly cooked, and reduced to a fine powder, perfectly soluble in water, requires only the simple addition of water to prepare it for use—in this respect having the advantage over all other foods.

NESTLE'S MILK FOOD is highly recommended by the best medical authorities in all parts of the globe as a perfect diet. Nestle's is the original and genuine Milk Food or Powder. The extensive demand for this Food, its well-known superiority and universal recognition by the medical profession, has produced the inevitable imitations. The Trade and the Public are hereby cautioned. Nestle's Milk Food has stood the test of years. Take no other under any pretence whatever.



NESTLE'S MILK FOOD is put up in Tins, packed in lined cases when ordered specially for the Export Trade. Is highly concentrated, and in a perfectly dry state. Will keep good in any climate.

For exportation the Food is a very desirable article, and is much sought after among people of all nationalities in all parts of the globe. Its advantage as an article for export consists in

Its uniform quality. Its purity. The simplicity of its preparation for use.

Its freshness in warm climates, where cow's milk soon becomes tainted.

Foreign and Colonial Importers should obtain their supplies through any Wholesale Firm in Great Britain, or Shipping Agent, thus ensuring fresh stock and lowest prices.

LONDON DEPOT: 9 SNOW HILL, E.C.

FRY'S MALTED COCOA

(PATENTED).

A Combination of FRY'S Pure COCOA EXTRACT with

ALLEN & HANBURYS' CONCENTRATED EXTRACT OF MALT.

J. S. FRY & SONS, BRISTOL AND LONDON.

SEVEN INJUNCTIONS have been granted during the past few months.



CAUTION! "YORKSHIRE RELISH."



NOTICE IS HEREBY GIVEN that in several actions instituted by Messrs. GOODALL, BACKHOUSE & CO., of LEEDS, Injunctions have been recently granted by Judges of the Chancery Division of the High Court of Judicature, restraining several persons from using several Counterfeits of Messrs. GOODALL, BACKHOUSE & Co.'s Labels, and in particular against the use of the words "YORKSHIRE RELISH." The sole and exclusive right to the use of which words having been finally established by the above Firm, they will take immediate proceedings against parties manufacturing or offering for sale Sauce under the above title, not being of the manufacture of Messrs. GOODALL, BACKHOUSE & Co.

Information may be given to the undersigned,

J. SEYMOUR SALAMAN,

12 KING STREET, CHEAPSIDE, LONDON,

Solicitor to the Trade Mark Protection Society.

FIRST CLASS MEDAL, NEW ZEALAND, 1882.

PHILLIPS & SONS' DANDELION COFFEE.

Castle Square, SWANSEA; 12 Arthur Street West, LONDON BRIDGE.

Be particular in noting London Address, as we have no connection with a Retail Firm of same name.

TRACE MARK.

R. J. FULLWOOD & CO.,
The Original Inventors of the Prime, Rich, Golden-colour Cake and Fluid Extract of
ANNATTO.

TO BE HAD GENUINE ONLY FROM THE STEAM ANNATTO WORKS,

31 BEVENDEN STREET (late 24 Somerset Place), HOXTON, LONDON.—Established 1785.

PHILLIPS & CO.,

IMPORTERS OF

TEAS, COFFEES, AND MANUFACTURERS OF PURE, PLAIN, AND FANCY COCOAS AND CHOCOLATES,

8 King William Street, City, London, E.C.

Warehouse and Show Rooms in adjacent premises, 13 and 14 ABCHURCH LANE, and at 10 and 11 GRAND HOTEL BUILDINGS, CHARING CROSS.

*The Agency for the Sale of PHILLIPS & CO.'S Teas and Coffees, Cocoas and Chocolates, will be found very profitable to Chemists.***CONROY'S MALT COFFEE.***Conroy's Malt Coffee has received the following Certificates amongst many others.**"Undoubtedly a nourishing and health producing article of diet."—Edward Davies, F.C.S., F.I.C., &c., Liverpool.**"Most beneficial in cases of atonic indigestion."—E. Adam, M.R.C.S., England.**"Genuine Coffee gives me indigestion. Your Malt Coffee is entirely free from this objection."—S. Whitaker, Waterfoot, near Manchester.**"Dyspeptics who could never take the ordinary coffee or date coffee can take the Malt Coffee, and with the most beneficial effects."—Dr. Lloyd, Bangor.**"I have frequently recommended your Malt Coffee in cases of weak digestion, invariably with satisfactory results."—W. Bell, Senior Surgeon to the Convalescent Institution, New Brighton.**"A most excellent combination."—A. W. Postans, F.C.S., London.**"Very palatable and marvellously easy of digestion."—Society, October 21, 1882.**"It can in many cases be readily taken when ordinary coffee disagrees."—British Medical Journal, July 29, 1882.**"Refreshing, and at the same time nutritious, spirit-infusing, yet absolutely non-intoxicating, palatable and wholesome to an eminent degree."—The Colonies and India, 29th Sept., 1882.**"Both pleasing to drink, and adds greatly to digestion."—The Anti-Adulteration Review, October, 1882.**"The combination ought, therefore, to improve the health of those who consume it."—Globe.**"Malt Coffee, the new temperance beverage, would seem to make the nearest approach to what is required. Pure malt is in its own way as beneficial as pure coffee, being especially strengthening and nutritious."—Morning Post.***IT IS MADE IN THE SAME WAY AS ORDINARY COFFEE.***Pamphlets containing Testimonials from Eminent Scientific, Medical, and other Gentlemen of the highest position, may be had Free for Gratuitous Distribution.*

In cases of 56lbs. each, put up only in 1-lb. and ½-lb. tins. Each Tin is protected by an Excise Stamp under the Regulations of the new Inland Revenue Bill of August 3, 1882.

PREPARED ONLY AT THE

MALT COFFEE WORKS, 34 FLEET STREET, LIVERPOOL.

SOLE PROPRIETORS—

EVANS, SONS & CO., 56 Hanover Street, LIVERPOOL.**EVANS, LESCHER & WEBB, 60 Bartholomew Close, LONDON, E.C.**

QUOTATIONS ON APPLICATION.

KETCHUP MANUFACTURERS.

FARROW & CO., Holbeach, Lincolnshire.

KANGRA VALLEY
Indian Tea Growers' Association,
7 NEW COVENTRY STREET,
LEICESTER SQUARE, W.

PROSPECTUS.

The object of the Planters who have formed this Association is to establish a business for the direct supply of Tea from the Plantations of the Kangra Valley to the public. So great a success has attended the efforts of the promoters of the Association that it has become necessary that one of the Planters should reside in England to manage its affairs. The distinctive feature of the business of this Association is that the Tea is delivered to consumers in the original One Pound tin-foiled parcels in which it is packed in the Valley, and it is guaranteed to be absolutely pure. The Association hopes that it may, without presumption, safely recommend this Tea to the public, believing that it will continue to give the greatest satisfaction.

Vide Allen's Indian Mail, Feb. 28, 1883. " * * * We can speak from actual knowledge of the excellence of the Teas of the 'Kangra Valley Indian Tea Growers' Association,' and in advertising them we are also benefiting those who take advantage of their enterprise, we append their modest prospectus, which promises no more than they are well able to perform."

Chemist and Druggist.—"A new agency for tea is offered to chemists and druggists by the 'Kangra Valley Indian Tea Growers' Association,' and the fact that the well-known firm of Barclay & Sons are assisting this association in introducing their teas to the public through chemists is a guarantee that the business is of a more serious character than some other of the packet-tea agencies have proved. The Kangra tea plantations lie on the slopes of the North-West Himalayas, and this association appears to take great care in the selection of their leaves, and certainly offer a tea of fine quality. Their teas are packed in pound packets at the plantations, and in that form are offered for sale here in three different qualities."

These Teas, retailing respectively at 4/ 3/ and 2/6, can be purchased in any quantity, either direct from the Store, 7 New Coventry Street, or from Messrs. Barclay & Sons, 95 Farringdon Street, Agents to the Association.

Special Terms granted to all Chemists and Druggists, to whom the Teas, on account of their absolute purity, are particularly recommended.

TEA AGENCY.

Trade Mark, "FATHER TIME", Registered.

HENRY ROUS'S Packet and Loose Tea.

Agents appointed where unrepresented throughout the United Kingdom. Samples and Prospectus post free. Bankers, the National Provincial Bank of England.—Warehouses, 376 to 378 Edgware Road, London, W.

RANDALL'S BLACK CURRANT LOZENGES.

	Net Cash.	To Acct.
Plain Black Currant, old square ..	2 6	2 8
" " " rough oval ..	2 6	2 8
Black Currant and Ipecacuanha ..	2 6	2 8
Black Currant and Tannin ..	3 0	3 3
Black Currant Voice (warm astringent) ..	3 0	3 3
Black Currant Cough Lozenges ..	3 6	3 10
(* Ipecac. and Morph., strength as "B. P.")		

In Bottles, 1 lb., 2 lbs., 4 lbs., and 7 lbs. For Exportation, in soldered tins, of any size. From EDWARDS, London; through any Wholesale House; and from the Manufacturers.

RANDALL & SON, Southampton,

Who will forward Samples by post on application.

Also, BROWN COUGH LOZENGES, 2s., 2s. 2d.; 7 lbs. stamped with name free, and MUSK LOZENGES (Special), 2s. 6d., 2s. 8d.

N.B.—Medical Lozenges of every kind.

Including those of the Pharmacopœia of the Hospital for Diseases of the Throat, London.

CHEMISTS' TEA AGENCY. WALKER & DALRYMPLE'S

BROKEN-LEAF TEA, 1s. 8d. per lb.

A MONEY SAVING TEA. ABSOLUTELY PURE.

The small leaf from some of the finest India and China Teas. Produces a Tea in the cup, stronger, richer, and cheaper than most whole-leaf Teas. Agents appointed, where unrepresented, throughout the United Kingdom.

WALKER & DALRYMPLE'S

INTERMEDIATE TEA, 2s. per lb.

BEST at the PRICE EVER SOLD. Great strength and a most useful Tea where there is a large consumption. Recommended to all who wish to SAVE in their Tea. Agents appointed, where unrepresented, throughout the United Kingdom.

WALKER & DALRYMPLE'S TEAS.— AGENTS APPOINTED, where unrepresented, throughout the United Kingdom.

Prospectus and Samples Free on Application.

Warehouses, 154, 155, 159 and 160 WHITECHAPEL ROAD, and
BRADY STREET, LONDON.

P.O.O. payable at head office. Bankers, the National Provincial Bank of England.

THE WELL-KNOWN "LONDON TEAS" ARE ONLY SUPPLIED WHOLESALE BY

THE GREAT TOWER ST. TEA CO (LIMITED).

Siftings from Fine Tea	for Retail at 1/4 per lb.
The London Whole-Leaf Tea	1/8 "
The London Broken Tea	1/8 "
The London Two-Shilling Tea	2/- "
The London Two-Shilling Indian Tea	2/- "
The London Assam Broken Tea	2/8 "
AND OTHER FINER BLENDS.	

Order a small Sample Parcel. The Quality never deteriorates.

A. HORATIO JONES, Managing Director.

The Great Tower Street Tea Co. (Limited), 39 Great
Tower Street, London, E.C.

PURE SOLUBLE COCOA.

VAN HOUTEN'S COCOA

Is the only guaranteed Pure Soluble Cocoa, better and cheaper than any other Cocoa, Cocoa Extract, or any Chocolate.

The *British Medical Journal*, March 27, 1869, says:—"Van Houten's Cocoa is admirable. In flavour it is perfect, and it is so pure, well prepared, and rich in alkaloid," &c., &c. See also the *Lancet*, &c.

Sold (full weight) in 1-lb., ½-lb., and ¼-lb. Tins, at 4s., 2s. 1d., and 1s. 1d. Sample Tins, sufficient for a family, free of charge, through your Grocer or Chemist, or from

THE CHIEF DEPOT, 6 & 7 COLEMAN STREET, LONDON, E.C.

MUSTARD.

FINCH, RICKMAN & CO.'S Genuine Qualities

Are made from the finest mustard seeds only. Their compounds, as manufactured for upwards of a century, are guaranteed free from all ingredients imparting spurious heat, and are therefore equally suitable for both table and medical purposes.

6 BROKEN WHARF, UPPER THAMES STREET,
LONDON.

Hunyadi János

CAUTION.—Circumstances which have come to the knowledge of Andreas Saxlehner, Buda Pest, Sole Proprietor of the Hunyadi János Spring, compel him to WARN the British Public against SPURIOUS IMITATIONS. To secure genuineness, purchasers should see that every bottle has on the LABEL the name of "THE APOLLINARIS COMPANY (LIMITED), London."

N. G. WILCOCKS' SODA-WATER MACHINE,

To make all the aerated drinks; 100 dozen per day large bottles of highly-charged gaseous water; with the recipes and directions; with machine on Wilcocks' easy terms (£1 15s. monthly for two years); comprises machine in iron frame, gauges, lead generator, copper gas-holder in oak tub, corking rack for corked bottles, "Eclipse" filling machine for patents, all pipes fitted in working order.

Particulars, write to N. G. WILCOCKS, BATH.

BEAUTY—WOMAN'S GREATEST CHARM.

NORINA'S EMOLLIENT,

Prepared from the Recipe of the late Dr. ANDERSON, produces a lovely complexion. It is elegantly perfumed, without sediment, and perfectly harmless. One of the best preparations before the public. Largely advertised and in great request. 6/6 each.

Agents—Messrs. NEWBERRY, King Edward Street, Newgate Street, London.

LIPSCOMBE'S 44 Queen Victoria St., City,

and Temple Bar, London.

FILTERS.

THE LARGEST MANUFACTURERS IN THE WORLD.

These Filters are a perfect safeguard against Typhoid Fever, Cholera, and Blood Poisoning.

ILLUSTRATED PRICE LIST FREE, WITH CAUTION TO THOSE PURCHASING A WATER FILTER.
VERY LIBERAL TERMS TO THE TRADE.

THE "COUNTY CIGARETTE."

BEYNON & STOCKEN,

10 GRACECHURCH STREET, LONDON.

M. A. CRAVEN & SON, WHOLESALE AND EXPORT CONFECTIONERS,

MAKERS OF

Medicated Lozenges, Refined Liquorice, Jujubes, and every description of Confectionery,

IMPORTERS AND MANUFACTURERS OF LEMON, ORANGE, AND CITRON PEELS.

EBOR CONFECTIONERY WORKS
YORK.

Lozenges of all descriptions made from Customers' private formulæ (or ingredients), and stamped with any name or device.

SPECIALITIES—Cough, Peppermint, Rose, Musk, Bouquet, Cachou, and all kinds of Medicated Lozenges.
ESTABLISHED 1843. PRICE LIST ON APPLICATION

SEVEN PRIZE MEDALS AWARDED.

**GOODALL'S
HOUSEHOLD SPECIALITIES.
YORKSHIRE RELISH.**

THE MOST DELICIOUS SAUCE IN THE WORLD.

This cheap and excellent Sauce makes the plainest viands palatable, and the daintiest dishes more delicious. To Chops and Steaks, Fish, &c., it is incomparable. Sold by Grocers, Oilmen, Chemists, &c., in Bottles, 6d., 1s., and 2s. each.

CAUTION.—On each Yorkshire Relish Label is a Willow Pattern Plate and name, GOODALL, BACKHOUSE & Co. No other is genuine.

**Goodall's
Baking Powder**

THE BEST IN THE WORLD.

Makes delicious Puddings without Eggs, Pastry without Butter, and beautiful light Bread without Yeast. In 1d. Packets; 6d., 1s., 2s., and 6s. Tins.

**Goodall's
Quinine Wine**

The best, cheapest, and most agreeable tonic yet introduced. The best remedy known for Indigestion, Loss of Appetite, General Debility, &c. Restores delicate individuals to health and vigour. In Bottles, 1s. 1½d. and 2s. 3d. each.

**Goodall's
Custard Powder**

For making delicious Custards without Eggs, in less time and at half the price. Unequalled for the purposes intended; will give the utmost satisfaction if the instructions given are implicitly followed. Sold in Boxes 6d. and 1s. each.

**Goodall's
Ginger Beer Powder**

Makes Three Gallons of the Best Ginger Beer in the World for 3d.

Is a delicious and invigorating beverage, possessing valuable medicinal properties. It is cooling in its nature, and a most wholesome beverage for both winter and summer. Sold in Packets, 3d. and 6d. each.

**Goodall's
Blanc Mange Powder**

Is acknowledged by all to be the most convenient and economical preparation ever introduced, as, by its use, a most Rich and Delicious Blanc-mange may be produced in a few minutes at a trifling cost, and may be had of various flavours, i.e., Raspberry, Strawberry, Lemon, Almond, and Vanilla. Sold in Packets, 6d. and 1s. each.

**Goodall's
Egg Powder**

Acknowledged to be the only real substitute for eggs yet discovered. Its action on Cakes, Puddings, &c., &c., resembles that of the egg in every particular, enriching them in colour and flavour, rendering them most wholesome and nutritious. One penny packet will go as far as four eggs; and one sixpenny tin as far as twenty-eight. In 1d. Packets; 6d. and 1s. Tins.

SOLE MANUFACTURERS—

GOODALL, BACKHOUSE & CO., White Horse Street, Leeds.

A Monthly Price List of Druggists' Sundries, Patent Medicines, &c., can be had post free on application.

IMPORTANT COMMUNICATION.

INTERNATIONAL FISHERIES EXHIBITION,
South Kensington,

London, 26th Oct., 1883.

SIR.—I have the honour of informing you that the Special Commissioners appointed by Her Majesty's Government to receive the Reports of the International Juries have awarded your exhibit, "Filtre Rapide," a GOLD MEDAL.

I have the honour to be, Sir,

Your most obedient servant,

E. W. H. HOLDSWORTH,

Special Commissioner for Juries.

The Sanitary Institute of Great Britain have Awarded the Only and Special Medal of Merit and Four Starred Certificates of Merit to Maignen's PATENT FILTRE RAPIDE.

The National Health Society have also Awarded the Silver and Only Medal ever given by the Society to Filters.

HIGHEST AWARDS AT ALL EXHIBITIONS.

MAIGNEN'S PATENT FILTRE RAPIDE possesses the following invaluable qualities:—

- 1st. It can be taken entirely to pieces and thoroughly cleansed.
- 2nd. The Filtering Medium can be thrown away when exhausted, and replaced by fresh in a few minutes at a trifling cost.
- 3rd. It removes all organic matter, lead, copper, and poisonous gases.

"A better filter could not be desired."—THE LANCET.

"It is worth the attention of those who require large quantities of pure water."—THE TIMES.

"We found a strongly ferruginous water to be tasteless after passing through it."—THE MEDICAL TIMES AND GAZETTE.

"The simplicity of this filter enables it to be readily cleansed and repaired, or renewed, in fact."

MEDICAL PRESS AND CIRCULAR.

"Maignen's Patent Filtre Rapide purifies, and at the same time aerates, the water. We have seen the exhibitor quaff from a glass of purified sewage which had simply passed through the patent invention."—KNOWLEDGE.

PRICES from 15s.

Ask for Pamphlet "Water—Preventible Disease and Filtration," from

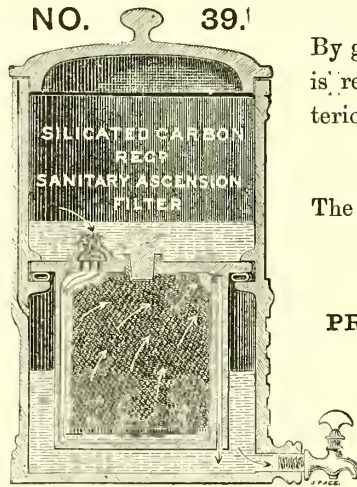
P. A. MAIGNEN,
PATENTEE,
22 & 23 GREAT TOWER ST., LONDON, E.C.

SILICATED CARBON REGD. SANITARY ASCENSION FILTER.

First and Highest Award at the International Medical & Sanitary Exhibition, South Kensington.

An ASCENSION FILTER, all parts of which are accessible for cleansing, and in which the Silicated Carbon can be renewed by the purchaser when required.

The water is trapped of the grosser impurities before reaching the Silicated Carbon, through which it passes upwards in the direction shown by the arrows.



By giving a half turn the inner vessel is released and the whole of the interior of the Filter is then accessible for cleansing.

The Silicated Carbon can be renewed as often as necessary.

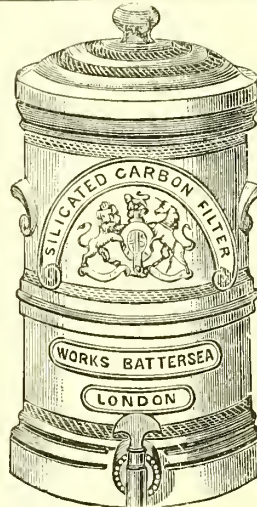
PRICE COMPLETE:

No. A, 1 gallon	...	18s.
No. B, 2 gallons	...	26s.
No. C, 4 gallons	...	38s.

DOMESTIC

Made in cream-coloured Stoneware, fitted with the Silicated Carbon Media, complete with Cover and Silver-plated Tap.

All sizes of this pattern can now be had with Ice Compartment, which renders this Filter the most perfect of Refrigerators.



FILTER, NO. 27.

PRICES.

				With Ice Compartment.
No. O, capacity $\frac{1}{2}$ gallon	10s. 6d.			
No. A, " 1 "	14s. 6d.	...	17s. 6d.	
No. B, " 2 "	21s. 0d.	...	25s. 0d.	
No. C, " 4 "	32s. 0d.	...	36s. 0d.	
No. D, " 6 "	42s. 0d.	...	48s. 0d.	
No. E, " 8 "	52s. 0d.	...	60s. 0d.	
No. F, " 12 "	70s. 0d.	...	80s. 0d.	

MAIN SUPPLY FILTER, NO. 40.

SPECIALLY ADAPTED FOR
Mansions, Schools, Hospitals, Public
Institutions, Breweries, Distilleries,
Soda Water Manufactories,
Dye Works,

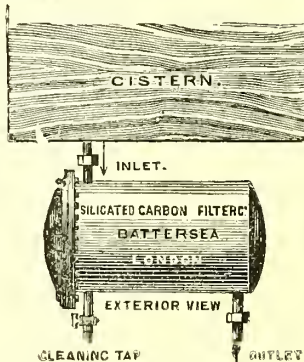
And all other Establishments where large quantities of

PURE WATER

Are required.

The ordinary Sizes kept in Stock are as follows:—

A, $\frac{1}{2}$ -inch pipe	...	£6 6s.
B, 1-inch pipe	...	£9 9s.
C, $1\frac{1}{4}$ -inch pipe	...	£15 15s.
D, 2-inch pipe	...	£26 5s.



This Filter is extremely simple in construction, and can be either connected with a Cistern or attached to the Main Service Pipe. It requires no attention beyond an occasional opening of the Cleansing Tap, and will deliver a supply of purified water at a rate of 50 to 1,000 gallons per hour, according to size.

Special Contracts entered into
for Large Works, Institutions,
&c., &c.,

FOR PURIFYING THE WHOLE OF THE WATER SUPPLY OF A BUILDING BEFORE USE.

Ensuring Rapid and Perfect Filtration, at either High or Low Pressure.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

SILICATED CARBON FILTERS.

SYPHON FILTERS FOR TRAVELLERS.

By means of these Filters pure and perfectly wholesome water may be drunk from any pond or stream by simply immersing the Filter therein and drawing the water through the tube by suction.

Each of these portable Filters may be



No. 20.

used as a Syphon by placing it in a vessel of water, then drawing the water by the mouth, and allowing the flexible tube to hang over the side below the Filter. When once set in operation their action is continuous.

- A.—Pocket Filter, 2½ inches diameter, in porcelain, with glass s. d.
mouthpiece, in decorated metal box 2 6
B.—Ditto, 3½ inches diameter, in best stoneware 5 0
Ditto, with silver-plated tap 7 0
C.—Emigrant's, 5 inches diameter, with silver-plated tap .. 12 0
G.—Pocket Filter, for carrying over shoulder, as supplied to the
Forces in Abyssinia and Zululand, and to the Ashantee
and Egyptian Expeditions 3 6
H.—Ditto, nickel-plated, designed by Major Fraser, R.E., and specially
recommended by the Horse Guards for Officers' kits 5 0

TABLE FILTER, NO. 24.

Made of stout glass, in 1, 2, and 3 pint sizes, the filtering medium being securely fitted into the bell-funnel, so that it is not liable to become loose, or to allow unfiltered water



to pass. This Filter is peculiarly suited for the Bedroom and for Table use, affording a ready and simple means of obtaining at any time freshly-purified water.

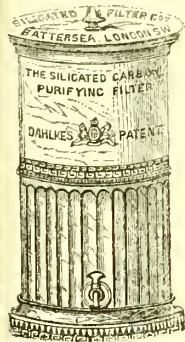
PRICES.

O, 2s. 6d.; A, 4s.; B, 5s. 6d.
Engraved Vine Pattern—O, 3s. 6d.; A, 5s. 6d.; B, 7s. 6d.

POROUS TERRA COTTA FILTER, NO. 29.

Shape of this Filter as Fig. No. 24.

O, 2s. 6d.; A, 4s.; B, 5s. 6d.



DINING-ROOM FILTER, No. 22.

MADE IN MARBLED CHINA.

Size A holds about two gallons; size B, five gallons.

PRICES.

- A 35s.
B 80s.
A, with Ice Compartment 42s.
(New Patent.)
B, with Ice Compartment 100s.
(New Patent.)

The large size (B) is specially adapted for Hotels, Refreshment Rooms, Luncheon Bars, &c.

REFRIGERATOR FILTER, NO. 25.

Made in Porous Terra-Cotta Ware,

Which acts with remarkable power as a cooler, and renders this Filter invaluable, especially in Tropical Climates,

AFORDING A

COOL DRAUGHT OF PURE WATER.

- Price, with Silver-plated Tap 31s. 6d.
Ditto, ditto, with Ice Compartment .. 42s. 0d.
Capacity Two Gallons.

Specially adapted for Tropical Climates.



SILICATED CARBON (Regd.) ASCENSION FILTERS.

The most efficient known Filter

PRICES:

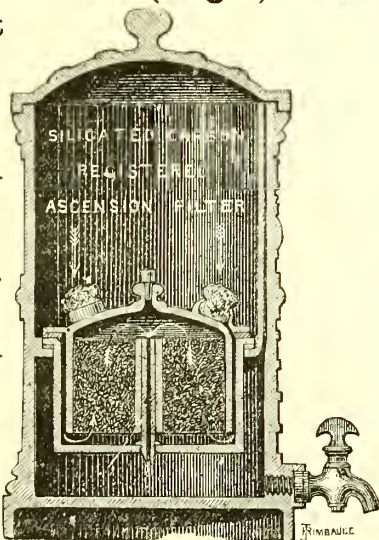
No. 38.

- 1 Pint, 2/6 ea.
2 .. 4/-
3 .. 5/6

The Water passes upwards through the Silicated Carbon in the direction shown by the Arrows in the Drawings.



NO. 38.



NO. 37.

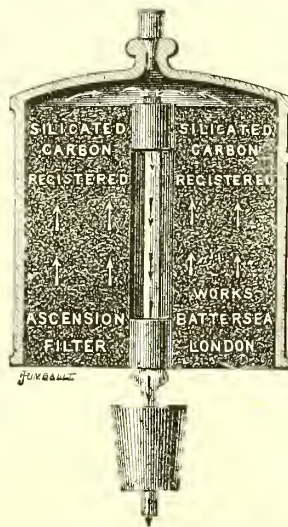
for Table and Domestic Use.

PRICES:

No. 37.

- 1 Gal., 18/- ea.
2 .. 26/-
4 .. 38/-

The inner blocks being movable, by attaching an india-rubber tube they can be converted into Pocket or Travelling Filters.



SECTION OF NO. 38.

WRITE FOR FULL LISTS TO THE

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

LABELS AND

SEND FOR MY
ILLUSTRATED AND
PRICE LIST.

THE PRINTER
FOR
Mineral Water Manufacturers,
Brewers, Chemists, &c.,
IS
J. B. LAMBE,
39 UPPER THAMES STREET,
LONDON.

MY NEWLY DESIGNED
STOCK **LABELS**
ARE NOW READY.

SHOW CARDS, &c.

F. DARTON & CO.,

Established
1834.

45 ST. JOHN STREET, WEST SMITHFIELD.

Established
1834.

DARTON'S

IMPROVED IMPERISHABLE

Index Clinical Thermometers,

As noticed in the *Lancet*, *Chemist and Druggist*, &c., can be obtained only of the Inventors and Makers; cannot get out of order, and are therefore specially suited for Export.

PLAIN CLINICAL THERMOMETERS, (Fahrenheit or Centigrade Scale).

4 or 6 in., in case, 3/6 each.

4 in. or 6 in. ditto, contracted in Ebony Case, 4/ each.
If with Magnified Bore, 6/ each.

DARTON'S IMPROVED DITTO, IMPERISHABLE INDEX,
4 or 5 in., 5/ each.

Ditto, Enlarged and Magnified Bore, with lens front, 7/ each.
One Bent and One Straight 6-inch Clinical Thermometer, in Morocco Snap Case, 10/6 the set.
Kew Certificates, 1/3 each extra.

BATH THERMOMETERS, Japanned Tin Cases, Silvered Metal Scales, 8 inches long, 12/ per dozen.

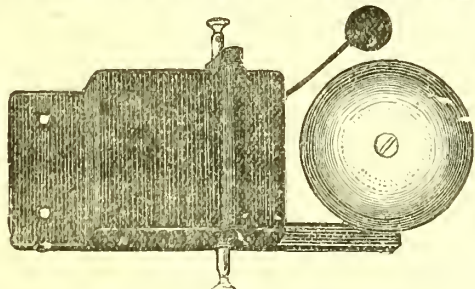
Ditto, Enamelled Tubes, with Dr. Forbes' Specifications, 15/6.
Ebonized Thermometers, with Enamelled Mercury Tubes, 4/6 per dozen.

8-in. Boxwood ditto, with spirit tubes, 6/ doz.

SPECIAL PRICES FOR LARGE ORDERS.

All kinds of Thermometers and Barometers made to Order.
A large Selection always in stock.

ELECTRIC BELLS.



New Form Metal Frame Electric Bell, with 2 1/2 Patent Dome, 4/6 each. Complete, with Large Battery, Push Piece and Wire, and Instructions for Fixing, 10/6.

If with best quality bell 14/6

Invalids' Electric Bell Set, with Bell and Battery in Polished Case, 30 feet of Flexible Line Wire, and Pear Push, 21/ each.

Ditto in polished Mahogany Case, with 3-in. best bell, 27/

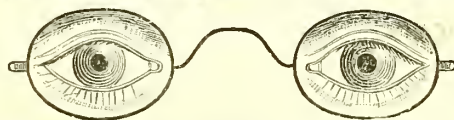
Estimates given for Fitting up Houses or Shops.

Magneto Electric Machines, in Pine Case, 10/6; ditto in Mahogany, 16/6; ditto, best quality, with plated handles, &c., 22/6.

Incandescent Lamps for the Electric Light, 4/ each.

New Illustrated Price List of Electric Bells and Fittings sent, post free, on application.

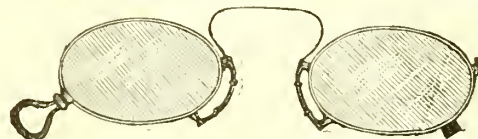
SPECTACLES.



Iron Frames, Convex Glasses, Assorted Sights.
Common, 18/ per gross. Better ditto, 21/ and 30/ per gross.
Cases for ditto, 12/ per gross.

Steel Frames—Common, 4/6 & 6/ per doz. Better Quality, 10/ per doz.
Ditto, fitted with Neutral Tint Glasses, 12/ per dozen.
Large Eye, Best Quality Frames and Best Neutral Tint Glasses, 30/ doz.
Ditto Light Ball-Joint Frames, 18/ per dozen.
Ditto Light Straw Frames, Grooved Glasses, 24/ per dozen.
Ditto Extra Light Frames, Best White Glasses, 36/ per dozen.
Pantoscopic ditto, with Polished Edge Glasses, 36/ per dozen.
Steel Frames, with Convex Pebbles, 27/ per dozen.
Ditto Better Quality Frames, 42/ per dozen.
Ditto Best Pebbles, 48/ per dozen.
Ditto Extra Light Frames and Best Pebbles, 60/ per dozen.
Gloular Spectacles, Neutral Tint, Domed Glasses, 7/6 per dozen.
Ditto Stout English, 30/ per dozen. [dozen.]

D EYE SPECTACLES, Neutral Tint Glasses, Best Quality, 48/ per



Common Steel Folders, 4/6 per dozen. Steel, 6/ and 7/6 per dozen.
Ditto, with Shell Nose Pieces, 10/6 per dozen.
Ditto Grooved Glasses, Light Frame, 15/6 per dozen.
Ditto Nickel Plated, Grooved, Extra Light, 24/ per dozen.
Ditto Best Fancy Handed, 42/ per dozen.
Nickel Plated Folders, Coloured Glass, 36/ per dozen.
Tortoiseshell ditto, Convex Glasses, 30/ per dozen. [dozen.]
New Pattern Gold Cased Japanese Folders, will wear like gold, 60/ per

FRAMELESS FOLDERS from 8/6 per dozen.
Nickel Plated Japanese Folders, with Domed Glasses, Best Finish, Blue and Neutral Tint, 30/ per dozen.
Gold Spectacles, from 11/ per pair.
Gold Folders, from 13/ per pair.

Tuck Cases, 14/ per gross. Folder Cases, 14/ per gross.
Ditto, all Leather, 30/ per gross. Ditto, superior, 24/ per gross.
Ditto, best Morocco, 48/ per gross. Best ditto, Velvet Lined, 42/ per gross.
French Frog Mouth Cases, 4/6, 6/, and 8/ per dozen.

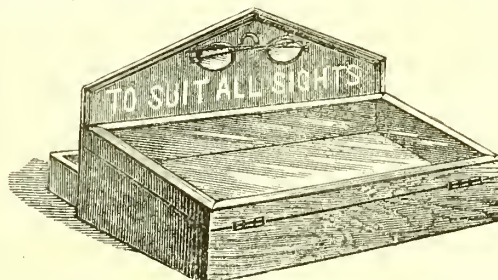
EYE-GLASS CORDS, Black Silk, 7/6 per gross. Ditto, Best Quality, 10/6 per gross. Ditto, with Ball and Swivel, 24/ per gross.

UNBREAKABLE GILT CORD, 3/ per dozen yards.

AMERICAN AUTOMATIC EYE-GLASS CORDS, with spring and Swivel, 7/6 per dozen.

* * * Single articles cannot be supplied at these prices.

For the convenience of Customers who have not yet started the Sale of Spectacles, we fit up Show Cases, containing an assortment of Spectacles, complete with Sight Tester and Instructions, as follows:—



Our £2 2s. SHOW CASE for the Counter, in Polished Mahogany, contains 4 dozen Spectacles, Sight Tester, and Instructions for suiting sight.

Our £3 3s. CASE contains, in addition, 2 dozen Folders and 2 dozen Cases. Larger sized Cases, in Polished Mahogany or Ebonized, with an assortment of superior quality Spectacles, Folders, and Cases, £6 6s. and £10 10s.

Ditto, with assortment of Best Pebble Spectacles and Folders, £21.

New Illustrated Price List of Spectacles and Folders, with Trade Terms, on application.

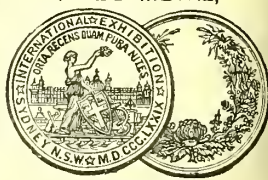
TRADE



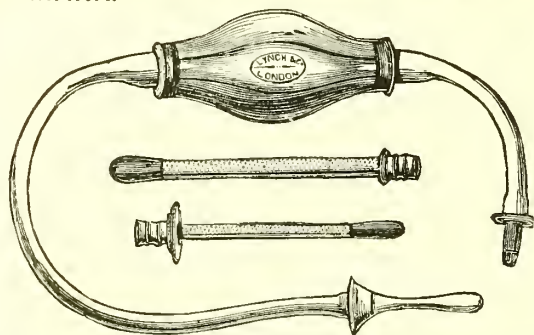
MARK.

LYNCH'S

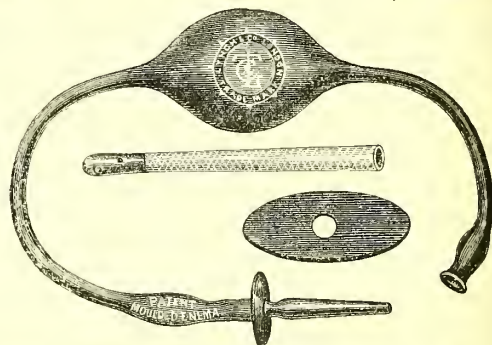
PRIZE MEDAL,



SYDNEY, 1879.



No. 436.



No. 435 D.

ENEMAS.

SUBJOINED ARE PRESENT PRICES:

										£	s.	d.
433A.	HIGGINSON'S, unvarnished india-rubber, with rectum pipe only, in slide cedar boxes	...	...	...	...	...	...	...	per doz.	1	5	0
433B.	Ditto, with elastic-gum vagina pipe and leather shield	...	...	...	...	...	...	...	"	1	10	0
434.	Ordinary Higginson's, barrel shape, with bone rectum pipe, elastic gum vagina pipe, to plug on, and patent leather shield, in slide cedar box	...	...	...	...	...	...	...	per doz.	1	12	0
434AA.	Ditto, fitted with vagina pipe with reversed current	...	...	...	...	...	...	...	"	1	16	0
434A.	Ditto, ditto, with disconnecting mounts	...	...	...	...	...	...	...	"	1	14	0
435c.	LYNCH'S (Higginson's principle), black, green, red or white india-rubber, requiring no metal mounts, in one continuous piece, warranted not to split, fitted with vulcanite rectum pipe, in slide cedar box	...	...	...	...	...	...	...	per doz.	1	10	0
435D.	Ditto, with elastic-gum vagina pipe, and leather shield, in slide cedar box	...	...	...	...	...	...	...	"	1	15	0
436.	LYNCH'S FAMILY (Higginson's principle), fitted with bone bulb-pointed rectum pipe for adults, elastic-gum vagina pipe, and elastic-gum rectum pipe with bone shield for children, in mahogany box	...	...	...	...	...	...	...	per doz.	2	8	0
437.	Ditto, in slide cedar box	...	...	...	...	...	...	...	"	2	3	0
437A.	LYNCH'S PERFECTION, in mahogany box	...	...	...	...	...	...	...	"	2	17	0
437B.	Ditto, in slide cedar box	...	...	...	...	...	...	...	"	2	10	0
437C.	Ditto, in superior mahogany box, with lock and key	...	...	...	...	...	...	...	"	3	12	0
437D.	Ditto, in oval boxes of cloth and leather	...	...	...	...	...	...	...	"	2	15	0
437E.	LYNCH'S COMPLETE HOUSEHOLD SYRINGE, consisting of Higginson's Enema with disconnecting mounts, fitted with bone bulb-pointed rectum pipe for adults, elastic-gum rectum pipe with bone shield for children, elastic-gum vagina pipe, and bone pipes for ear, eyes, and nose, in mahogany box	...	...	...	...	...	...	...	each	0	7	6

Discount—10 per cent. Monthly, 5 per cent. Half-yearly Account.

SPECIAL QUOTATIONS FOR 12 DOZEN AND UPWARDS.

LYNCH & CO.,

Wholesale and Export Chemists and Druggists' Sundriesmen,
Surgical Instrument Makers,

DEALERS IN PATENT MEDICINES, PERFUMERY, AND PROPRIETARY ARTICLES,

ALDERSGATE STREET, LONDON, E.C.

SCOTT'S EMULSION

OF PURE COD LIVER OIL WITH HYPOPHOSPHITES OF LIME AND SODA

PERFECT—PERMANENT—PALATABLE.

We are now presenting this Preparation to the notice of the Medical Profession in Great Britain, with the belief that, upon a proper examination and test, they will find its virtues unequalled by any similar combination, and it will warrant their approval and endorsement.

The high favour it has met with in all the countries where it has been presented, has prompted us to introduce it in this country, and we believe Physicians will not be slow in responding to our efforts in its introduction.

Its PERMANENCY as an EMULSION, remaining indefinitely without separation or change; its PALATABLENESS, the disagreeable properties of the oil being so entirely disguised that the most delicate stomach can take and retain it; its perfect HOMOGENEOUSNESS, and the excellent results attending its use in all of the conditions for which its unexcelled components are useful, give it an enviable reputation, and the universal sanction of the Medical Profession.

We trust all Chemists will procure a small quantity of the Emulsion, or at least fill all orders they may receive for it. We herewith append the opinions of some of the prominent Physicians of London, which is certainly a guarantee of its especial virtues.

The BRITISH MEDICAL JOURNAL writes, July 7, 1883:—

"It is palatable, and we have no doubt that many patients who have a repugnance to ordinary Cod Liver Oil would take it without difficulty."

London: 32 Keppel Street, Russell Square.
DEAR SIR,—While practising in Canada I prescribed Scott's Emulsion of Cod Liver Oil extensively, with excellent results.

Yours truly,

May 11, 1883.

W. F. CHAPPELL, M.B., M.R.C.S.E.

56 Mile End Road, E.
DEAR SIR,— Your Emulsion has really been of great service to a little patient of mine who has suffered from bronchitis continually. Will you kindly send me one quarter-dozen per return, and I will remit P.O. for amount.

P.S.—I find that children will take it very readily.

Yours faithfully,

London, April 27, 1883.

FREDK. W. WILES, M.R.C.S., L.S.A.

4 High Street, Bloomsbury, W.C.
DEAR SIR,— Respecting the Cod Liver Oil Emulsion, I beg to state that I find it an admirable preparation, very palatable, and of excellent therapeutic effect.—Faithfully yours,
London, April 18, 1883.

ALFRED W. H. LEE, L.R.C.P.

Junior Garrick Club, London, May 11, 1883.

MY DEAR SIR,—I am only a visitor here in London, and have had no opportunity of using the sample of Scott's Emulsion you so kindly sent me, but I have regularly prescribed it in America (San Francisco), and I generally found that patients derived great benefit from its continued use, and it was always tolerated much better than the ordinary Cod Liver Oil.

Yours faithfully,

F. W. HODG, M.D.

55 Stephen's Green, E.

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D. P. KENNA, L.R.C.S.I.,

Dublin, April 5, 1883.

Surgeon St. Vincent's Hospital.

23 Cornhill, E.C., April 4, 1883.

DEAR SIR,—I have tried your "Scott's Emulsion" of Cod Liver Oil with Hypophosphites in a case of rickets (very young child), totally adverse to taking any kind of medicine. His nurse tells me he takes Scott's Emulsion without any difficulty, and even pleasure (sic). I certainly think he has derived considerable advantage from it myself.

Yours truly,

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FIG. 1.

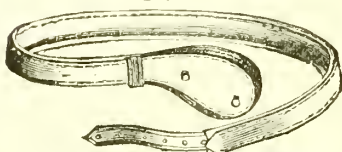


FIG. 4.

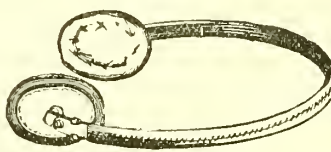
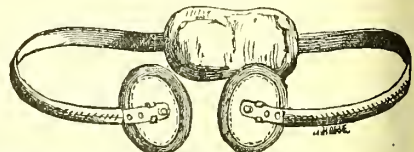


FIG. 5.

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Circular Trusses, double, basil and chamois or basil and moleskin	per doz.	1 14 0
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Salmon & Od's Expired Patent, single, Fig. 4	"	1 10 0
" " " " double, Fig. 5	"	3 0 0
Moc-Main Lever, single	each	0 8 0
" " " " double	"	0 13 6
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" " " " double	"	0 7 0

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Calves-pieces	0 6 6	0 10 6	0 4 0	0 5 6
Socks	0 7 6	0 10 0	0 4 6	0 6 0
Wristbands	0 5 6	0 8 6	0 3 10	0 5 0
Knee Stockings	0 2 3	—	0 1 8	0 2 0
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	0 16 6	—	—	0 12 0

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See "Trade Notes," CHEMIST AND DRUGGIST, October 14th, 1882, p. 456.

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PUBLISHER'S NOTICE.

Copies of the Chemists' and Druggists' Diary for 1884 will be delivered to all subscribers towards the end of this month. All subscribers in the United Kingdom will receive these through Messrs. Sutton & Co., and in all cases the copies should be delivered free. If any of Messrs. Sutton's agents should in error claim any payment for delivery, we request that a receipt should be taken and sent to us, when we will refund the money. Subscribers requiring extra copies should order them early. To them the charge is 2s. 6d.; to non-subscribers, 3s. 6d.



Readers will please note that in order to use our full space for literary matter the Exchange Column now appears in the advertisement section of this journal, in close proximity to the advertisements for assistants, situations, &c. This department of THE CHEMIST AND DRUGGIST has become a very useful feature, and we would advise those readers who have not yet employed it, to clear off some of their old stock by its means the first thing next year.

With this number we enclose an index to THE CHEMIST AND DRUGGIST for the current volume. We have before commented on the usefulness of a carefully compiled index, and we take the liberty of suggesting to all subscribers that if they do not have the volume bound, they would do well

to at least tie up the numbers with the index easily accessible for reference. There are, for instance, included in the volume some hundreds of formulæ and items of information all on subjects of more or less frequent importance to chemists and druggists. By having these always available the subscriber multiplies the service he gets from THE CHEMIST AND DRUGGIST perhaps ten, twenty, or a hundred-fold. Specifications of patents interesting to pharmacists are generally indexed so that ready reference may be made to this important section of technical literature.

We publish in this number a portrait of the late Mr. John Eliot Howard, F.R.S., with a sketch of his life. Mr. Howard died on November 22, at the age of 76.

There is still, it appears, some prospect of the Privy Council taking up the amended Pharmacy Bill submitted to them last year by the Pharmaceutical Council. They have informed the President of the Pharmaceutical Society that the subject is still under the consideration of the Government, who hope to arrive at a clear idea within a month or two.

A chemist at Partick, near Glasgow, has paid the sum of 200*l.* and expenses to the father of a youth who had been accidentally poisoned by medicine obtained at his shop. The error arose through the substitution of a preparation of acnite instead of tincture of *Actæa racemosa* which had been prescribed. It has been stated that a Glasgow wholesale firm were primarily responsible for the error, as they had supplied the wrong tincture to the chemist; and it is further stated that they have repaid the chemist the 200*l.* and all his expenses in the matter.

We have to report the suicides of two chemists, one at Hackney, and another at York.

A County Court judge has decided that the sale of certain objectionable articles by a chemist's assistant, notwithstanding the disapproval of his employer, furnished sufficient reason for his summary dismissal. (See under Torquay, page 585.)

Our Australian correspondent sends us a letter written by an English pharmacist who has lately established himself in Victoria. The correspondent seems satisfied with his new surroundings. He says good assistants get from 50*s.* to 75*s.* per week. From New Zealand we learn that the amendments to their Act were passed in August, and also that the seat of the Pharmacy Board is removed from Wellington to Auckland.

From Canada we have some details respecting the wholesale trade of Montreal, and from Jamaica another correspondent sends particulars of the condition of pharmacy in that island.

The eighteenth recurrence of the Chemists' Ball is fixed for January 16, 1884. Mr. Fred. W. Warrick takes the secretarial duties on this occasion. As the number of tickets supplied is limited to 350, devotees had better secure these.

A case is pending in the High Court of Justice between Messrs. Domeier & Co. and Messrs. Hale & Son, which has a considerable interest for the denizens of Mincing Lane. It arises out of some dealings in camomiles, and intricate questions of brokerage are likely to arise.

The Chemists' and Druggists' Diary for 1884 has been issued and should have been received by all subscribers. Extra copies (for apprentices, partners, or friends) are supplied to subscribers at 2s. 6*d.*, but to non-subscribers the price is 3s. 6*d.*, and no variation is made in this price whether the Diary is delivered in the office or sent per carrier. In all cases we deliver free.

Pharmacalia.

TINCTURE OF NUX VOMICA.

MESSRS. DUNSTAN & SHORT have pursued their inquiries into the nature of *nux vomica* and its preparations, and brought their results before the last evening meeting of the Pharmaceutical Society. With regard to potent remedies of this class, it is by all means important that uniformity of strength should be attained, and to this object the efforts of the operators have been and continue to be directed. Their ultimate aim is to produce what may be called a titrated extract and tincture; and, judging from the work already done, there seems a reasonable hope that this difficult branch of research will be crowned with success.

The discrepancies known to exist in the tincture admit of easy explanation; in the first place the seeds of *Strychnos nux vomica* themselves differ in the amount of alkaloid contained; secondly, alcohol with more water than spirit may have been used in manufacture, and this view is supported by comparative analysis. It has been assumed, indeed, that a dilute alcohol extracts more alkaloid than a stronger alcohol, and formulae based on this idea have been adopted in foreign pharmacopœias. An attempt was made by direct experiment to determine the extractive power of alcohol of different strengths, maceration being employed in preference to percolation, owing to the swelling of the seeds and consequent clogging of the percolator occasioned by the action of the water upon the mucilaginous constituents. Exhaustion was not complete, for the marcs in all cases were distinctly bitter; but the results showed that water mixed with rectified spirit in any proportion up to and including proof spirit, extracts more alkaloid than rectified spirit alone; but when the water rises above the proportion contained in proof spirit the extractive power for alkaloid again diminishes. Proof spirit, therefore, is the obvious menstruum to be selected.

The best working strength recommended by Messrs. Dunstan & Short is 100 volumes of rectified spirit mixed with 25 volumes of water. A mixture of this strength passes readily through the percolator. Rother has proposed the use of sodium chloride in the preparation of tincture of *nux vomica*, claiming on its behalf a more complete exhaustion. The statement was not supported by any alkaloidal determinations. By direct experiment with a menstruum of the strength already mentioned, and a percentage of 1.5 sodium chloride dissolved in spirit, very nearly the same results were obtained—actually, a little less.

A convenient and advantageous method would be to prepare a tincture from the extract in a fixed proportion, supposing always that the latter were a product of definite alkaloidal strength. Unfortunately, this is far from being the case; the extract being just as variable as the tincture when prepared in the ordinary way. The gain would be so apparent in having at command an extract known to be of definite character that experiments were made to determine the possibility of its production.

Prepared with rectified spirit, 10 grains of the extract were dissolved in 1 oz. of rectified spirit, making a perfectly clear solution; but in 24 hours a white sediment had deposited.

Ten grains of the same being dissolved in proof spirit, some oil remained insoluble, and an abundant yellow sediment was deposited.

The same being dissolved in a mixture of two volumes of rectified spirit and one volume of water, a large quantity of

oily matter remained insoluble, and a copious yellow sediment was deposited.

Lastly, an extract was prepared with proof spirit, and, 10 grains being dissolved in proof spirit, a nearly clear tincture was produced, and the deposit was very slight. From the above experiments it was shown that so far no very ready means had been devised of manufacturing a definite tincture from the extract. It became requisite to discover a simple and accurate method for the estimation of total alkaloid in the extract. As regards the tincture, it consisted in evaporating to dryness, and dissolving the residue in a mixture of chloroform and dilute sulphuric acid; but this did not answer with the extract, for the alkaloid finally extracted was impure. The following process was adopted:—

About 1 gramme of the extract is dissolved in a strong solution of sodium carbonate with the aid of a gentle heat. This solution is extracted with two consecutive 15 c.c. of chloroform. The mixed chloroformic solutions are extracted with two consecutive 15 c.c. of dilute sulphuric acid (5 per cent.), and from the mixed acid solutions, which should be filtered if necessary, the total alkaloid is extracted by agitation with chloroform, two separate quantities of 15 c.c. being generally sufficient. The clear chloroformic solutions are evaporated to dryness upon the water-bath, and the residue of total alkaloid weighed after exposure for one hour. The alkaloidal residue thus obtained was shown to be pure by applying the ammonia-tannin process, which we have fully described in a former paper. The following is a typical result:—(α) amount of alkaloid originally found; (β) amount of pure alkaloid obtained by ammonia-tannin process.

α—0.164.
β—0.161.

Twelve commercial specimens of extract were examined with all necessary precautions, and a serious want of uniformity was detected. The highest percentage of total alkaloid was 17.54, the lowest 10.32, and the variation may partly be accounted for from the frequent practice of removing the oil which separates during the manufacture of the extract. On evaporating an alcoholic tincture of *nux vomica* a comparatively large quantity of oil is separated, which itself contains both strychnine and brucine; and hence the oil cannot be removed from the extract without diminution in alkaloid strength. Some commercial extracts on examination yield but a mere trace of oil; it may have been removed, or a very dilute spirit may have been employed. The authors are unacquainted with the actual method of manufacture, but are now engaged in trying to find out a simple and direct method for the preparation of extract of *nux vomica* which shall be constant in alkaloidal strength.

Mr. Umney thought the difference in alkaloidal strength was to be attributed mainly to the variation in the seeds. The manufacture of strychnia was confined in England to one or two firms, and they were accustomed to reject *strychnos* coming from Calcutta or Madras, and to prefer that which came from Calicut. There was no published account of the percentage yield of these alkaloids similar to those obtained from cinchona. He did not think that the oil was usually abstracted; as for himself, he had used a spirit about 63° over proof, with about 90 per cent. of alcohol. He considered proof spirit the most suitable solvent; it would act less upon the oil. Mr. Brownen alluded to a solid extract prepared by means of acid and water. He believed the acid to be acetic. Dr. Symes directed attention to a paper read before the Liverpool Chemists' Association confirmatory of the results obtained by the authors of the communication before the meeting. He had known as

much as a drachm of the tincture prescribed, and it was evident that variations in alkaloidal strength would be a serious matter. Mr. Giles had long suspected the judiciousness of the spirit ordered in the preparation of tincture of nux vomica, and had long been of opinion that a weaker spirit would be more effectual. The whole question of the strength of alcohol used in tinctures wanted revision. There appeared to be a kind of superstition that there was something magical in the conditions of rectified and proof spirit. The United States were considerably in advance of us as regards this subject. The most important feature of the paper was the question of standardising preparations. It was absurd that they should be ignorant of the relative strength of such potential remedies as nux vomica.

* *

AN OLD BOOK.

Mr. Greenish has presented a curious old work to the Pharmaceutical Library, "The Practice of Physick in seventeen books, being chiefly a translation of that learned and renowned Doctor Lazarus Riverius, sometimes counsellor and physician to the King of France, 1678." As usual there is a double preface; one, the address of the Printer to the Reader; and the second, that by the Author. The contents of the treatise itself require no comment. Those who are familiar with the style and composition of the seventeenth century know tolerably what to expect, and are seldom disappointed. There is little in these medico-pharmaceutical dissertations of much practical use. But the Printer's Preface contains a quaint defence of works written in plain English; and he is at pains to show that the secrets revealed are not likely to injure the medical profession. "The use of such books respects chiefly the poor of the nation; together with seafarers and soldiers; for the rich who have money and can bide at home, they are no otherwise (in point of practice) than for an honest curiosity, and delightful speculation. What rich man is there so mad, who, reading a chapter in these books, and seeing what a world of considerations and cautions belong to the knowledge and orderly cure of every disease, but will be more fearful than ever he was before to commit himself to the cure of any but a learned physician?"

Sometimes we are led to think that the tone of feeling is higher in the present age than it was two centuries ago. The following extract may confirm the idea:—"Now it is not by the poor, but by the rich, that the learned physician maintains himself; the poor are but a trouble to him; only before such books as these were extant in the English tongue, conscience (sometime) forced the learned physician to take care of the poor, because the unlearned were wholly unable."

Being therefore good—shall we say for trade?—the printer shows how the reader will better know how to behave himself in medical emergencies, and Hippocrates is introduced upon the scene, who says: "It is not enough towards the cure that the physician do what is fitting; but the bystanders and friends of the sick must play their part or all will not be well. Should, however, any be tempted by the perusal of like works to practise upon themselves; if they do they have none to blame but their own folly. The publisher designed the book for those at sea sailing in the King's and Merchants' Ships and for Honourable Ladies who devote themselves to amateur physic though perplexed by an ignorance of the Greek and Latin tongues."

"And that thou, oh reader, mayst know to whose great industry and pains thou art obliged for the Englishing this most excellent piece of art, know that Nicholas Culpeper, physician and astrologer, Abdiiah Cole, and William Row-

land are the interpreters." And one mysterious fourth individual, described as an eminently learned and pious physician, who desires not to be named; being (as he says) "content with the applause of his own conscience." "A work that tends to profit many millions, not only of this generation, but of all that shall follow till the world become one great bonfire; or this nation and language perish together."

With this estimate of the value of the Translation, we may leave Riverius, remarking only that three addenda complete the volume. I. Five hundred and thirteen Observations or Histories of Famous and Rare Cures. II. Select Medicinal Counsels of the Renowned Johannes Ferneus: being picked and chosen out of four hundred consultations and advices for sick people, of which these are the flower and cream. III. Additional Observations.

The printer, either proud of his composition, or short of original matter, has used his preface twice; once in extenso, and once in a shortened form.

* *

THE COPPER CURE.

M. V. Burq strongly expresses his opinion on the use of copper as a preventive against infectious diseases, and on the immunity from these maladies enjoyed by the artisans in the copper-works. The question seems to be disputed with a show of evidence on both sides; but, in the meantime, great expectations are formed in France concerning the future of this metal as a remedial agent. Many denials, remarks M. Burq, have been made of the efficacy of the copper treatment, and to these he has replied before the Academy by quoting results obtained. There are in Paris about 1,000 workers in white metal, into the composition of which enter copper, nickel, and zinc. Amongst 600 workmen at one establishment there was not a single case of epidemic affecting the turners, setters, or polishers. From other factories the same information was supplied. On making inquiries from copper and bronze manufacturers on the largest scale, it was found that the workmen for the most part were free from epidemic diseases, cholera, typhoid fever, and small-pox. In the severe attacks of typhoid fever at Paris, in 1876-77 and 1882-83, it was ascertained that out of 5,000 victims to the scourge only four persons suffered from amongst the workers in copper. At the foundries at Villedieu the workmen were preserved from cholera in 1832 and 1849.

A letter from the Mayor of this town attested that at those two dates not one case of cholera made its appearance among the men. It seems that this immunity from infection has not been preserved, but on inquiry it was found that men who had been attacked with fever were living in densely-packed neighbourhoods, near canals and close by open sewers. They were thus under conditions which rendered the protective agency of the copper ineffectual. Dust in old copper-works is stated not to be injurious; and hospital statistics show that, while lead has its disease, copper has not. The author concludes that workers in copper enjoy a certain immunity from cholera, and probably from other infectious diseases, specially typhoid fever.

* *

Another year has almost passed away, though the winter in its usual snow-clad robe has hardly made its appearance. In the political world of pharmacy there has been a lull, and medical legislation, at one time firmly expected, has for the present been postponed.

Death has taken away John Eliot Howard, who so recently received the Hanbury Gold Medal, an honour which was specially his due; for his life had been consecrated to original research in the very line most grateful to the one whose name the medal bears. Of late years Mr. Howard

ceased to give undivided attention to strictly pharmaceutical subjects, and took a lively interest in the proceedings of the Victoria Institute. He frequently appeared before the members of that society, both in the character of writer and speaker; some of his contributions being republished in a cheap and popular form for general distribution. He will be recollected as a successful investigator so long as cinchona has an interest either for the cultivator or the pharmacologist. The widow of the late Jonathan Pereira has also passed away, and should be remembered here, for to the last she was keenly appreciative of the continued respect in which the genius of her husband and his work were held.

We regret sincerely the removal of Alfred Allchin, so many years one of our most conscientious examiners, and a pharmacist of no mean order. We miss too, and shall particularly next May, our old friend Benjamin Humpage. He was a cheery person; hopeful under difficulties, and a man who always saw the silver lining to the cloud. At an anniversary meeting he was a real godsend in the promotion of good feeling, and, speaking with a strong infusion of business common sense, he had command over his audience. His happiest effort was the morning when he smiled away a crisis, and observed that he had passed his life in hearing calamities predicted and seeing them vanish into thin air.

The Pharmaceutical Council.

THE Council met on December 5; Mr. Michael Carteighe, President, in the chair. Mr. Churchill (Birmingham) was the only member absent.

THE LATE MR. JOHN ELIOT HOWARD, F.R.S.

THE VICE PRESIDENT (Mr. S. R. Atkins) moved a resolution expressing the regret with which the Council had heard of the death of Mr. Howard, and requesting the President to send a letter of sympathy to Mrs. Howard. Mr. BOTTLE seconded the motion, and the PRESIDENT spoke of the great respect manifested by Mr. Howard's neighbours at his funeral. The motion was carried unanimously.

THE EXAMINERS

for England and Wales and for Scotland were next appointed. There was no change in the former Board, but in the Scottish Board Mr. Thomas Maben, of Hawick, was appointed in place of Mr. Ainslie, who retired. The thanks of the Council were voted to the examiners generally, and a resolution was passed recording the Council's appreciation of the services of Mr. Ainslie.

BENEVOLENT FUND.

One grant of 20% and three of 10% each were recommended by the Committee and voted by the Council to persons associated with the Society, and one grant of 10% and two of 5% each were voted to widows of registered chemists and druggists, as well as 5% to the Secretary's Casual Fund, and 5% out of the proceeds of Mr. Robbins' special donation to a member who had in former years contributed 13*l.* 13*s.* to the fund.

Mr. Hampson had written to the Committee suggesting that persons other than members and subscribers should be allowed to sign petitions for assistance from the fund. The Committee had decided not to recommend any alteration in the regulations. Mr. HAMPSON asked if some member of the Committee would state the reasons which had led them to that conclusion. He thought the Council ought to seek to obtain all possible information, and in some instances it was possible that information was excluded, and that the fund might be, therefore, not so well administered.

The VICE-PRESIDENT explained that among the reasons which had influenced the Committee were that they could not learn that any insuperable difficulty had yet occurred in consequence of the rule referred to. The rule only required that four members or subscribers should sign the form, but

they obtained information concerning the cases from any source. Further, he said as anyone might become a subscriber by paying half a crown, there need not occur any great difficulty.

The PRESIDENT, however, pointed out that section 8 of the rules required that the application should be signed by four persons who had subscribed not less than half a guinea for three preceding years, or had given a donation of five guineas, or, in the case of widows and orphans, must be signed by four persons who had subscribed half a guinea for the current year.

The VICE-PRESIDENT admitted that he had been misinformed, and agreed that this condition did give some point to Mr. Hampson's remarks. Several other speakers seemed to think that it might be desirable to allow the paper to be signed by, perhaps, two outsiders and two members or subscribers, and the subject was referred back to the committee for reconsideration.

The SECRETARY reported that the subscriptions received during the current year to that date had amounted to 1,520*l.*, while during 1882 the amount subscribed was 1,568*l.* But last year 388*l.* had been received in donations and 300*l.* in legacies, while this year's donations had only amounted to 94*l.* 15*s.*, and nothing had come in from legacies.

THE LIBRARY, MUSEUM, LABORATORY, AND HOUSE COMMITTEE

Sent in their report, giving a list of additions to the library and museum. Among other details, it was stated that the College of Preceptors had informed the Society that, in consequence of the increase of time occupied by

THE PRELIMINARY EXAMINATION

involving more work for the Examiners, the fee payable to the College would have to be increased by about 30 per cent. The Committee recommended that this should be agreed to.

A proposal to admit

NOVELTIES IN APPARATUS

to the Museum had been considered, but the committee did not consider that such admission would be practicable in the limited space at present available.

On this point Mr. SYMES raised a discussion in the Council. He considered the exhibition of improved apparatus was as important as any other part of the educational work of the Society. As an instance, he mentioned a new form of funnel which he had obtained from Paris, and which he intended to show at the evening meeting that day. He would like to have left it in the museum, but he found there was no place where a half-pint funnel could be shown.

Mr. HAMPSON agreed with Mr. Symes as to the importance of exhibiting apparatus, but perhaps the decision of the Committee was necessary, because if small apparatus were brought large apparatus might be.

The PRESIDENT said the Committee were anxious to move in the direction indicated by Mr. Symes, as shown by the resolution that apparatus might be sent in for exhibition before the evening meetings; but in these days of advancing chemistry the question of exhibiting novelties and apparatus was a very large one, and the Committee were unanimous in thinking that, until they could get the next house or some other space, they could not undertake such a work satisfactorily.

The VICE-PRESIDENT said there would be an immense variety of apparatus between a half-pint funnel and a soda-water machine, and who was to draw the line?

Mr. SYMES doubted whether a soda-water machine would come under the designation of pharmaceutical and chemical apparatus; but in any case there need not be any difficulty, because it might be required that apparatus exceeding certain dimensions should be exhibited only in model. He declared that all the improved apparatus of the past ten or twenty years could be shown on the Council table, or, at any rate, within the space of half the Council room.

Mr. SQUIRE said Mr. Symes had raised the question in respect to a funnel for filtration. If all the various filter-presses and apparatus for filtration by pressure or by vacuum were exhibited—and these were distinctly pharmaceutical—the house itself would not contain all the forms of apparatus, because, if they admitted the manufactures of one maker, they must admit those of all other makers.

The Council divided on the proposal of Mr. SYMES,

seconded by Mr. HAMPSON, that the Committee should be asked to reconsider this matter, which was defeated by 13 votes to 6, Messrs. Andrews, Hampson, Radley, Savage, Symes, and Woolley forming the minority. Mr. Richardson did not vote.

INFRINGEMENTS OF THE PHARMACY ACT.

The General Purposes Committee's report included the letter from the Solicitor, from which it appeared that Alexander Holmes, of 40 High Street, Stockton-on-Tees, who had been trading under the style of "The Northern Counties' Supply Stores," had remitted the penalty sued for and costs. Other cases had been considered.

THE PHARMACY ACTS AMENDMENT BILL.

A communication from the Lincolnshire Association for the Prevention of the Administration of Poisonous Drugs to Horses was read by the Secretary, thanking the Council for what had been done, and urging them to press forward their Bill. The Association also hoped that hellebore and salts of copper would be included in the schedule. They had heard from the Privy Council on November 17 that the subject of the sale of poisons was still under the consideration of the Government.

Mr. HAMPSON asked if the President had heard anything from the Privy Council showing that they were willing to take any step to amend the law. If not, the Council ought to take the initiative and find some independent member who would introduce the Bill.

The PRESIDENT said that on receipt of this letter he had gone to the Privy Council, but had been told that the only answer that could be given him either privately or publicly was that the subject was still being considered by the Government, who were anxious to do something, and hoped to arrive at a clear idea in the course of a month or two.

Mr. HAMPSON, Mr. BOTTLE, Mr. SCHACHT, and Mr. SYMES spoke of the desirability of pressing forward the amendment of the Act. Mr. SCHACHT said it was painful to him to vote for legal prosecutions of poor creatures who had not exactly complied with the letter of the law, while he knew that flagrant and absolutely violent hostility to the principle of the Act was being carried into practical effect by persons who just managed to evade, by recent decisions, the exact letter of the law. They had just heard of a person whom they had threatened to prosecute who had put himself within the letter of the law by converting his business into a limited liability company. Might not the President urge on the Government officials that this was a position in which no responsible body ought to be placed?

The PRESIDENT said he would call the committee together as soon as possible, and would endeavour to obtain further information.

Pharmaceutical Society of Ireland.

MEETING OF THE COUNCIL, DECEMBER 5.

PRESENT:—The President, Mr. James E. Brunner, M.A., in the chair. A letter was read from Mr. Trevelyan, the Chief Secretary to the Lord Lieutenant, in reply to a letter of the Council stating that they desired an interview with him in reference to some points connected with the state of the law as to pharmacy, and the sale of poisons in Ireland. He would be going to Scotland in a few days; and after his return, if the Council communicated with him, he would arrange to receive a deputation from them.

The PRESIDENT suggested that a deputation should be named now.

Mr. GRINDLEY: I do not think it should be confined to one or two. As many of the Council ought to attend as can.

Mr. PAYNE: Some representative men on both sides of the question would be better than a very large deputation.

PRESIDENT: If there be any difference of opinion it should be argued at the Council table. We must decide on what we want here. Everything that we want has already gone before Mr. Trevelyan in writing.

Mr. HODGSON said the feeling seemed to be that it should be open to every member of the Council to go on the deputation.

Dr. COLLINS said that was the course pursued in a late deputation from the Apothecaries Hall. If there were any differences of opinion these had better be settled now.

Mr. WELLS: The only point on which we differ is as to whether there should be a second grade or not.

Mr. HAYES said that outside the society there was a desire amongst chemists and druggists to be registered in order to prevent the continuance of a practice which was evidently intended to be prevented by their Act, namely, the "Sale of Poisons," without hindrance by new chemists and druggists who were continually springing up.

Mr. WELLS said they were all agreed that only registered men should be allowed to sell poisons, but there was a difference of opinion as to the establishment of a second grade which would be perpetuated.

Mr. MINCHIN observed that the establishment of a second grade would not affect members of the Society who carried on business in the metropolis, but it would be ruinous to those in the country to have the legitimate drug trade and sale of poisons taken out of their hands, because in the country towns the prescriptions of medical practitioners would not anything like suffice to maintain the pharmacists.

PRESIDENT: I think it better now to pass to the next business with the understanding that in case Mr. Trevelyan decides on receiving the deputation before the January meeting a special meeting will be called. The question must then be settled whether it is the wish of the majority of the Council that a grade of registered druggists should be made perpetual or not. The Council of last year expressed an opinion that such a grade might with advantage be introduced.

After the disposal of some correspondence of personal interest only, the four gentlemen who had acted as examiners for the Council were re-elected.

Dr. MONTGOMERY remarked that he thought the gentlemen appointed to attend as visitors at the examinations should take a more prominent part than they did. He gave notice of motion on the subject for the next meeting.

A letter was read from Dr. Kaye, Q.C., Clerk to the Privy Council, enclosing a copy of a memorial which the Privy Council had received in reference to the proposed new regulations for the society which are at present under the consideration of the Lord Lieutenant and the Privy Council. The memorialists stated that they had passed the Preliminary examination; that, according to the calendar for 1883, candidates were eligible for the final examination who had been practically engaged in compounding and dispensing for two years in the establishment of a pharmaceutical chemist or apothecary keeping open shop; that the new regulation which enlarged the period to four years was to have a retrospective effect from January, 1883; that the memorialists and many others similarly circumstanced had been induced by the regulation at present in force to enter on the study of the profession in the belief that a period of only two years' service in compounding and dispensing would be required; that they would be most unfairly and injuriously affected if the Privy Council sanctioned the retrospective effect of the new rule; and they, therefore, prayed the Privy Council to amend the resolution so far as to prevent such retrospective effect.

The Law Committee recommended that the resolution in question should be amended so that the new rule would not come into force until January 1, 1884.

After some discussion,

Professor TICHBORNE moved that the recommendation of the Law Committee in relation to the communication received from the Privy Council, be adopted.

Mr. DORAN seconded the motion, which was agreed to *nem. con.*

On the motion of Mr. HAYES, seconded by Dr. COLLINS, it was resolved that the Registrar should attend at the rooms, No. 11 Harcourt Street, on Mondays, Wednesdays, and Fridays, from 10 to 12 o'clock, noon, and that notification of this rule be placed on the doorplate.

The following gentlemen passed the examination for the licence as pharmaceutical chemist, held on October 3 and 4, and were registered as pharmaceutical chemists on November 7:—Messrs. Robert Carse, Dungannon; Robert Duggan, Rathmines, Dublin; Thomas Johnstone, Belfast; Patrick Kelly, Dublin; Alfred McBride, Dundalk; Robert William, Belfast; Patrick Merrin, Dublin; and Henry O'Reilly, Dublin.

Metropolitan Reports.

FATAL ACCIDENT AT MESSRS. HOWARDS'.—On Friday, December 7, an accident occurred at the works of Messrs. Howards'. A large fly-wheel was being moved from one part of the works to another, when a stone in the way caused it to fall over, crushing the chest of the head foreman, Mr. Charles Gunstone, who had been "a faithful and valued servant" of the firm for twenty-nine years. He died in a few minutes.

SUICIDE OF A CHEMIST.—Sir John Humphreys held an inquest on Thursday, November 29, at the Palmerston, Well Street, upon the body of Isaac Garrett, 53, chemist, who was found lying dead at 238 Well Street, Hackney, on Monday evening. Mrs. Garrett stated that her husband had recently purchased the business, and felt that he had been deceived. On Monday she left him at mid-day to visit some friends, and, returning home about six in the evening, found the door locked; she called the assistance of the police, who forced an entrance, and deceased was found lying behind the counter dead. His father committed suicide. She believed the bad bargain preyed on his mind, and that he committed suicide whilst of unsound mind. Dr. R. O. Bunting stated that he had examined the deceased and found that he had taken an exceedingly heavy dose of prussic acid. The jury returned a verdict of "Suicide whilst of unsound mind," and added a rider that he committed the act believing he had been deceived in the purchase of his business, which, according to the statement of the wife, did not produce more than sufficient to pay the rent of the house and shop. The business had been purchased of a Mr. Edmunds.

Provincial Reports.

BIRMINGHAM.

MIDLAND COUNTIES CHEMISTS' ASSOCIATION.

A MEETING of the above association was held at Birmingham on November 28, the president, Mr. J. Lucas, in the chair. Mr. A. E. Robinson, F.C.S., read a paper on "Michael Faraday, the Man and the Chemist." The lecturer sketched the various phases of Faraday's life, passing in rapid review the blacksmith's son, the bookbinder's errand boy, the journeyman bookbinder, the assistant in the laboratory of the Royal Institution, companion to Sir Humphrey Davy in his Continental tour, and, finally, investigator and philosopher.

Amongst his numerous papers in the "Quarterly Journal of Science" were briefly noticed his investigation on steel and its alloys, on the compounds of chlorine and carbon, and on the passage of gases through capillary tubes—the latter research doubtless being the first step in the ladder of the law of gaseous diffusion, so extensively elaborated by Professor Graham. The memorable paper on fluid chlorine, read by Faraday before the Royal Society, March 13, 1823, was then discussed at some length, and it was shown how the conversion of a gas into liquid was the preliminary step in the discovery by Faraday of benzene, which he isolated from the condensed gas of the Portable Gas Company.

The lecturer also briefly described the application of his greatest discoveries:—Magneto electric induction, and current electric induction to telephones, and electric lighting, and then referred at length to Faraday's researches in electro chemistry and his ultimate discovery of the law of electrolysis, which to-day is practically where he left it. An experimental illustration was appended, showing the chemical equivalents which, in each case, were liberated from water and solution of copper sulphate, potassium iodide, and silver nitrate.

His numerous other researches were not touched upon, they being associated with the phenomena of electricity and magnetism; but the correlation of forces (to completely establish which was the main desire of Faraday's life) was illustrated experimentally.

The electricity evolved from the chemical action, taking

place in a galvanic battery, being shown to produce sound, light, heat, and magnetism.

Mr. Robinson then read an article from "St. Paul's Magazine," by Lady Pollock, describing Faraday's inimitable power as a lecturer; and also a translation of Monsieur Dumas' *Eloge* at the Académie des Sciences, in which the foreign savant so beautifully portrays the attributes of this great philosopher, and concluded an interesting lecture with the remark, "Future discoveries, pouring new light on the facts he enunciated, will not tend to diminish their glory, but the fiercer, the more brilliant the light that beats around the discoveries of this illustrious man, the clearer and more distinct will be our vision of their character and value, and future ages will, I venture to predict, reap, even more than we have done, the produce of the seed sown by the blacksmith's son, and the greatest of modern philosophers—Michael Faraday."

Other details of Faraday's scientific labours and personal history were narrated by the lecturer, who also exhibited some interesting water-colour paintings, representing the philosopher's homes—namely, Clapham Wood Hall, the home of his ancestors; Jacob's Well Mews, where he spent the earlier portion of his life; bookshop in Blandford Street; home in Hampton Court, given to him by Her Majesty, and where he spent the latter portion of his life; tombstone in Bethnal Green Cemetery.

A cordial vote of thanks was passed to Mr. Robinson for his paper.

GLASGOW.

DAMAGES FOR ACCIDENTAL POISONING.

AN action for 1,000*l.*, which had been raised in the Glasgow Sheriff Court in connection with the recent poisoning case at Partick, has lately been settled. The pursuer, Wm. McKay, was the father of the young man who lost his life, while the defender was Mr. Rait, chemist, Partick. In his statement of claim McKay stated that his son was an apprentice fitter, earning about 3*l.* per week. On June 4 last, having contracted a bad cold, he called upon Dr. Young, who prescribed certain medicine, consisting of *inter alia*, tincture of *Actea racemosa*, and for which the doctor wrote out a prescription. The ingredients of that prescription were quite harmless, and the order was taken by pursuer's daughter to defender's premises in Partick. A mixture representing to be what was asked for was made up by a salesman in defender's shop and handed to the girl. The mixture, however, instead of being according to order, is alleged to have contained a quantity of tincture of aconite, a virulent poison, and pursuer's son, having taken the medicine, died on June 6. The defender explained that he was from home at the time, and that his shop was in charge of a manager of long experience as a chemist and druggist. One of the ingredients in the prescription presented to the salesman was tincture of *Actea racemosa*, a liquid extracted from an American root seldom prescribed by medical men. Defender further stated that the tincture had not been prepared by himself, but was obtained from a wholesale druggist in the same state that he dispensed it, and it was not ascertained till after the medicine had been supplied to the girl that it contained a strong preparation of aconite. He further mentioned that when he became satisfied that the death of George McKay had been caused by poison, he expressed great regret at the loss pursuer had sustained, and offered before the raising of the action to pay the sum of 150*l.* in full of all claims. When the case was called before Sheriff Lees on the 5th inst. for adjustment the parties presented a joint-minute setting forth that the defender, having paid the pursuer the sum of 200*l.* and expenses, the latter had accepted that sum in full of all claims. His Lordship, in terms of this arrangement, issued an interlocutor, dismissing the action without expenses.

A letter subsequently appeared in the Glasgow papers from Messrs. McLelland, Thomson & Towers-Clark, Agents for Mr. Rait, explaining on behalf of their client that while the civil responsibility to the public rested with him by aconite instead of *Actea racemosa* being dispensed, yet neither he nor any of his assistants was in any way the cause of the mistake, nor could any blame whatever be imputed to them. The Procurator-Fiscal, in the criminal proceedings against one of the assistants, after a thorough investigation and analysis of the different medicines, abandoned

the charge; and in the civil action Mr. Rait explained in his defences, that the aconite given to McKay was received from a firm of wholesale druggists in Glasgow instead of *Actea racemosa*, the medicine actually ordered. Further, that while Mr. Rait paid to Mr. Wm. McKay the sum of 200*l.* and expenses, by an agreement come to out of court, the wholesale druggists repaid Mr. Rait all this outlay, and a considerable sum in addition to meet other expenses.

EDINBURGH.

EDINBURGH CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.

THE third meeting of this session was held on November 21 at 9.15 P.M., Mr. Claude F. Henry, president, in the chair. After the transaction of some preliminary business Mr. Peter MacEwan read a paper on "Volumetric Analysis." Taking the pharmacopœial processes as the basis of his remarks, the essayist led up to his subject by an explanation of those departments of chemistry which are entailed in volumetric work, and contrasting the tedious with the quicker and more trustworthy volumetric processes, he claimed for the latter more general use by pharmacists, and a wider application in pharmacopœial analysis. After the history of the art was briefly run over, the principles were looked into, and their application in the B.P. group of standard solutions was illustrated by a number of titrations. Laying great importance on a correct knowledge of Dalton's atomic theory, the essayist showed that the calculation of results is extremely simple with such a knowledge, and concluded with some practical hints to beginners. On the motion of the President, seconded by Mr. Still, a hearty vote of thanks was accorded to the author.

Mr. Robertson brought forward his motion for the institution of an annual ball, which was unanimously agreed to, and a committee (Mr. Robertson, convener) was appointed to make arrangements for a *conversazione* as well as a ball. Several queries were then submitted, and after a lively discussion thereon, the meeting adjourned.

The Association met again on the 5th inst., when Mr. George R. Fowler read a paper on "Elementary Chemistry." This paper was the first of a series intended for the younger members more particularly, and these members, by turning out in large numbers, have shown that the innovation is a wise one. Mr. Fowler considered the forces of nature, and howed practically how these determine the conditions of matter—solid, liquid, and gaseous. Contrasting chemical force with other forces, he showed that the former may totally alter the conditions of bodies, and by means of a number of interesting experiments brought out his points in a very clear manner. After a lucid description of Dalton's atomic theory, he concluded with a reference to the theories regarding chemical action which have been promulgated by Dr. Frankland. The paper was fully illustrated by diagrams, experiments, and the like, and the author was awarded a hearty vote of thanks. Several queries having been replied to, the meeting was brought to a close.

LIVERPOOL.

REGISTERED CHEMISTS' TRADE ASSOCIATION OF LIVERPOOL.

THE annual dinner of the Liverpool Registered Chemists' Trade Association was held on November 15 at Messrs. Fisk & Fairhar's, Castle Street. There was a numerous attendance of chemists, the wholesale trade being also fairly represented. The President (Dr. Symes) occupied the chair.

After the toast of "The Queen and Royal Family," the Chairman proposed the toast of the evening, "The Registered Chemists' Trade Association of Liverpool," coupled with the name of Mr. Hocken, the Hon. Secretary. The President recounted briefly what the Association had done during the eight years of its existence, and said it should be a source of satisfaction to every chemist and druggist in Liverpool to know that such a machinery existed close at hand ready to defend their rights or secure their interests when opportunities presented themselves, and this formed a good reason for asking all to join them. The old proverb remained true, "Unity is strength," though he would not be understood to discourage individual effort. Much had been said and written of late about the bad state of trade, and what was to be expected from protective

legislation. Much, no doubt, could be accomplished in this direction in their corporate capacity, although, perhaps, not as much as they wanted; but he would ask them to let this supplement rather than replace their individual efforts. The Chairman concluded by referring to the earnest manner in which the Hon. Secretary had worked for the Association.

Mr. Hocken, in responding, said that the little he had done had been done with hearty goodwill, and with the desire to make the Association a success, both as to its usefulness to the trade and the increase of members. He was glad to see such a large representation of the trade present, but he also saw a number of non-members of the Association, and he cordially invited them to become members.

The toast of "The Pharmaceutical Society" was given by Mr. Mackinlay, who advanced the claims of the Benevolent Fund upon all chemists and druggists, to which Mr. Warhurst responded. "The Chemists and Druggists' Trade Association of Great Britain" was proposed by Mr. J. J. Smith, and responded to by Mr. Councillor Woodcock, a member of the general committee. "The Chemists' Association of Liverpool and Kindred Societies" was proposed by Mr. Wyatt, and responded to by Mr. E. Davies, F.C.S., &c. "The Wholesale Trade" was proposed in his usual happy way by Mr. Turner, and replied to on behalf of the gentlemen present by Mr. Evans (Messrs. Evans, Sons & Co.). "The President" was proposed by Mr. R. Parkinson, and heartily received.

During the evening Mr. H. Jackson (Messrs. W. & H. Jackson) gave two recitations, several songs being contributed by Messrs. Ramage, J. F. Swift, Williams, and others, Mr. Godfrey Mark kindly acting as accompanist.

NOTTINGHAM.

FIRE.—On November 20 a serious fire broke out on the premises of Messrs. J. & F. Walker, linseed and linseed-cake merchants, at London Road, Nottingham. The premises were completely gutted, but the damage, estimated at 20,000*l.*, was covered by insurance.

NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION.—At the second monthly meeting of the above, Mr. Councillor Fitzhugh, F.S.C., in the chair, the hon. sec. (Mr. C. H. Bolton) read a letter from Professor Atfield, in reply to a vote of thanks passed to him at a previous meeting for the admirable address he had given at the meeting of the British Association at Southport. Mr. F. H. Spenser delivered an instructive lecture on "The Ear," illustrating his remarks by a large dissecting model.

OLDHAM.

OLDHAM CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.—On November 29, Mr. C. G. Wood read a paper on "The Manufacture and Purification of Iodine," before the members of the above Association.

TORQUAY.

A CHEMIST'S ASSISTANT'S CLAIM.—Thomas Ness, a Torquay chemist, was sued by George R. Smith, chemist's assistant, at the Newton Abbot County Court on November 16 to recover the sum of 10*l.* as damages for alleged wrongful dismissal. Mr. Creed appeared for the plaintiff, and Mr. Carter for the defendant. The evidence for the plaintiff was that he was engaged on March 16 last as manager of the defendant's branch business in Market Street. Defendant received an excellent character from Smith's last employers at Stratford, and engaged him on terms subject to a month's notice on either side, and a salary of 45*l.* a year, besides board and lodging. The plaintiff, who was also a certificated surgeon-dentist, agreed at his first interview with the defendant on arriving at Torquay to establish a dentistry practice in connection with his employer's business, the arrangement being that the defendant should purchase the necessary instruments and take half the receipts. Everything seemed to proceed satisfactorily until October 25, when the defendant came to the shop in the evening and at once dismissed his assistant without any previous notice whatever. Plaintiff asked why he had been thus dismissed, and charges of dishonesty were then made against him in not accounting for one-half of the proceeds of the dentistry. This the plaintiff then and now denied, but admitted that he had ordered and sold on his own account a few dozen of

certain articles [French letters]. The terms of his dentistry practice were that for each extraction he should charge a shilling. Cross-examined by Mr. Carter: Plaintiff said that the terms of the engagement gave one month's notice on either side. The account produced of 17. was for twenty extractions which he had made in the period mentioned on the bill. He denied that he received more than 17. in that period, but it is quite possible that he had made more than twenty extractions, as he frequently extracted teeth for poor people for nothing. The objectionable articles referred to were ordered by himself, but were sent to the defendant by mistake, as he used one of his employer's memorandum forms. Mr. Ness spoke to him about the sale of such things, but did not exactly order him not to sell them, although he expressed his disapproval of the matter. He denied that he disposed of the articles over the counter, but admitted that by the request of another assistant he sent some to defendant's shop at St. Marychurch. He, however, had never received the money for those. Plaintiff called witnesses who deposed to having teeth extracted free of cost. His Honour did not call upon Mr. Carter to reply, but found a verdict for the defendant. He was of opinion that the charge of dishonesty had not been proved against the plaintiff, but the transactions which he seemed to have carried on were sufficient justification for the defendant's action. Mr. Carter applied for costs, and reminded his Honour that the other side of the case had not been heard. The application was refused.

YORK.

MELANCHOLY SUICIDE OF A CITY COUNCILLOR.—On November 17 it was discovered that Mr. Frederick Leak, druggist, of Walmgate, York, had committed suicide under somewhat extraordinary circumstances. He arose apparently in his usual health, dressed, and was for a short time present in his shop. He then returned upstairs, and, not coming down for a more than ordinarily long time, an attempt was made to enter his bedroom, the door of which, however, was found to be secured within. This led to suspicion and the calling in a police constable, who forced an entrance to Mr. Leak's room, where horror was excited by finding that gentleman hanging by the neck from one of the posts of his bedstead, and quite dead. The articles he had used for strangulation were his two worsted garters, which were tied together. In ordinary life Mr. Leak was apparently a genial, happy gentleman, his ample means placing him beyond all thought of adversity. For several years he had represented Walmgate Ward in the York City Council, and quite recently he was taking an intense interest in the election then at hand in the ancient city, having been engaged in canvassing, and a few evenings before having delivered an address deprecating the disgrace of a Tory return for the city in his own ward. He had occasionally suffered from fits of depression, and had been attacked with one a few days before his death.

PHARMACY IN AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

MELBOURNE, VICTORIA, October.

THE past two months have been the dulllest in the year, and it becomes a matter of some difficulty in finding subjects of interest to home readers, the majority of topics being of only local interest.

I send you the following letter from an English pharmacist, who has recently established himself in Victoria:—

Sir,—You have asked me for an expression of opinion concerning the interests general of Pharmacy in Melbourne. My first impressions were most favourable as I received the greatest kindness and courtesy from those few gentlemen (connected with pharmacy) to whom it was my good fortune to be introduced on my arrival here.

As you are aware, I was only a week in the colony before commencing business for myself; consequently, my experience is not a varied one.

The business here differs widely in many respects from English pharmacy, and I must say I give preference to the colonial method. In comparison, there is a much larger return for an equivalent of work, far better profits, little or none of the disagreeable haggling about the price of goods, and an entire absence of that patronising condescension so liberally bestowed in

England) on those who are *unfortunate* (?) enough to be "behind the counter." Although not entirely free from unfair competition, there is far less cutting of prices here.

There is no lack of medical men, and hardly any of them dispense their own medicines, so that every chemist has a fair chance of making a good dispensing connection.

Reliable assistants are very difficult to secure, and demand very high salaries, good men getting from 50s. to 75s. per week, and a very fair amount of leisure: it is noticeable that nearly all the best assistants are from England. Although all the English assistants who have landed here up to the present time have been at once taken up, there is not, of course, an unlimited demand for them, and as long as small numbers only arrive there will be vacancies found to receive them.

Many of the pharmacies here are really handsome shops, not only in size, but in fittings and finish, and thoroughly well stocked; it would be difficult to find anything to surpass them in any city of the same size in England.

It is, unfortunately, a lamentable fact that the proprietors of the largest and best establishments, having the cream of the trade, are the very foremost in reducing prices—fostering the germ of co-operation.—Yours, &c.,

J. L.,

Pharmaceutical Chemist of Great Britain by examination.

Melbourne, September 12.

This gentleman certainly laboured under some disadvantages, having commenced business immediately on his arrival, without any previous experience of how business is conducted in Australia, and, of course, totally unacquainted with colonial prices. His remarks may be taken as fairly representing the prospects of a smart, educated man who means to succeed, and who does not start by finding fault with every little difficulty that he may encounter. His statement that nearly all the best assistants are from England is perhaps quite true, although a little rough on those bred and educated in the colony. The worst feature of the colonial-bred assistant is that, having obtained his full qualification, he ceases to take any further interest in pharmaceutical progress and advancement and other matters relating to his business, and is content in nine cases out of ten to settle down into a common drudge.

THE EARLY-CLOSING MOVEMENT

about which I spoke in my last two letters, does not make very great headway. The chemists in all the principal suburban towns south of the Yarra have adopted the principle, and now close their establishments at 9 P.M. on all evenings but Saturday, when the time is extended to 10 P.M. The pharmacists in these suburbs may be congratulated, in having taken the matter in hand in so practical and unanimous a manner. The trial made, small as it is, shows that the present long hours are totally unnecessary, and only tend to harass and shorten the lives of many valuable men. A joint committee of members of the Council of the Pharmaceutical Society of Victoria, and of a newly-formed Association called the Victorian Chemists' Assistants' Association, are now considering the matter, and are endeavouring to get the Council in Melbourne and the other suburbs to adopt the same principle as those south of the Yarra. I fear, however, they are never likely to secure entire unanimity, and without it the system can never be general.

At a recent meeting of the Microscopical Society of Victoria Mr. C. S. Blackett read some interesting "Notes on the Use of the Microscope in Pharmacy." The thanks of the community are certainly due to this gentleman for the very large amount of valuable time he has, during the past twenty-five years, devoted to pharmaceutical education, and his name is associated with all the movements for the advancement of pharmacy during that time.

The first examination was held in the insolvent estate of Hemmons, Law & Co., wholesale druggists, on October 2, when Josiah Hemmons, trading as "Hemmons, Law & Co.," stated that, in partnership with his brother, Frederick Hemmons, he commenced business about twenty years ago. They then had each a capital of 300*l*. In 1874 Mr. Horace Laws joined the firm, but there was no deed of partnership. Mr. Laws brought 3,900*l*. into the business. In June, 1877, the partnership with Mr. Laws was dissolved, and he received 2,500*l*. when he retired. The insolvent was under examination during the whole of the day with reference to the business transactions of the firm and the withdrawal from it of his brother, Frederick Hemmons, and of Messrs. Faulding, of Adelaide, all of whom had been partners of the insolvent's at various times. At the conclusion of the

examination the insolvent was ordered to file, as nearly as possible, a statement of their assets and liabilities in 1881, when the alleged withdrawal of Faulding & Co., of Adelaide, from the firm occurred.

At a recent meeting of the Pharmacy Board the following important resolution was carried unanimously.

That a period of more than six years having elapsed since the Pharmacy Act, 1876, No. 553, came into operation, the conditions upon which applicants for registration under the said Act, No. 558, not provided for by section 3, sub-section 18, be reconsidered, and from the date thereof no further registration be granted until the Board is satisfied that the standard of education and examination is equivalent to that demanded in Victoria.

I understand that the Board have adopted this course in consequence of the impossibility of obtaining from the other colonies any definite standard of education.

The effect of the resolution will be that no person can now be registered unless they come within the sub-section of section 18 of the Pharmacy Act, 1876.

I learn from New Zealand that the amendments to their Pharmacy Act, 1880, passed on August 17.

The examiner at the last Preliminary examination states that the papers of the candidates at the examination held on September 4 are by far the best that have ever been sent in, and the average is also better than usual, seven out of thirteen candidates having passed.

In the report of the Tariff Commission the recommendations of the Pharmaceutical Society of Victoria, that the duties on opium be levied according to the strength of opium in the preparation, have been adopted. The remission of duties on certain articles recommended, with the exception of strychnine, has been also agreed to.

PHARMACY IN NEW ZEALAND.

ELECTION OF PHARMACY BOARD.

THE first annual election of a Pharmacy Board took place on September 27, and resulted as follows:—Bonnington, Christchurch, 132; Aickin, Auckland, 113; Edson, Auckland, 109; Pond, Auckland, 109; King, Auckland, 106; Brittain, Wellington, 104; Bagley, Dunedin, 94. The above form the Board. The other candidates were:—Leary, Dunedin, 78; Elder, Port Chalmers, 67; Marshall, Dunedin, 57; Isaacs, Dunedin, 40; and Fitzgerald, Wellington, 29. 197 votes were received, of which 19 were informal.

From this statement it will be seen that Auckland has obtained four members out of seven, thereby securing a quorum, and at the same time having the other centres, Wellington, Christchurch, and Dunedin, duly represented. That arrangement is similar to what existed heretofore with the important difference that Auckland will now be the head office of the Board instead of Wellington.

The removal, I understand, is at the express wish and with the concurrence of the Wellington members of the old Board, who felt that they had done their share of the duties connected with the Board, and thought that the Auckland men, who had displayed the greatest interest in the work, should be the ones to undertake the responsibility and any honour connected therewith.

The position so honourably ceded to Auckland is no sinecure, and the onus of maintaining and furthering the efficiency of pharmacy in this colony will be with the new Board.

To enable New Zealand to take her place in this respect on an equality with Victoria and elsewhere, fresh legislation will be necessary, which they hope to effect next session of Parliament. Better means of pharmaceutical education is much needed; this, however, appears more hopeful, as collegiate classes for chemistry and botany in connection with the University are likely to be instituted shortly. In reference to the present Pharmacy Board (the new one does not come into office until January 1, 1884), a word of commendation is due. To them, and more especially to the President (Mr. C. L. Barraud) and the Secretary (Mr. J. A. Allan), the pharmacists of New Zealand are under great obligations for their self-denying, earnest exertions during the past three years. It was mainly through the strenuous efforts of the two gentlemen I have named that

the Pharmacy Act was passed in 1880, and it was due chiefly to their indefatigable labours that the work of the Board has gone on smoothly and effectively. Let us hope that the Auckland Board will not allow the work to flag, but that they will take up the mantle of their predecessors, and make the name of pharmaceutical chemist in New Zealand a term implying respect, intelligence, and influence.

PHARMACY IN CANADA.

(FROM OUR OWN CORRESPONDENT.)

MONTREAL, November 19.

CHEMICALS IN CANADA.

A FEW years ago German chemicals were rarely met with on the Canadian market. Now we have the products of Merck, Gele, Schering, and other reliable makers regularly imported. As a rule, the quality is excellent, Merck's salicylic acid and salicylate of soda and Schering's chloral hydrate being particularly good. Eserine sulphide, which has been in fair demand by our oculists lately, appears to be very variable in its composition, judging by its appearance. Scarcely any two specimens are the same colour, and some samples are very much more hygroscopic than others. Most dispensers here on opening a bottle make the whole into solution immediately. The best sample I have met with came from the Pharmacie du Dr. Vée, rue du Faubourg St. Denis, Paris. Duboisine appears to have lost its momentary popularity, it being very little prescribed in Canada now. Jequirity beans (*Ibrus precatorius*) came in with a flourish of trumpets two or three months since; whether they will stand the test of therapeutic research remains to be seen. I see the beans quoted in a wholesale drug-list out West at \$1 per cz.—a profit of about 300 per cent. on the import price. I had a handful of them given to me years ago by a friend who had spent some time in the West Indies, and who brought them home with him on account of their pretty colour. He called them crabs' eyes. The use of iodoform is increasing, and it is now imported here from Germany in the state of impalpable powder, which is very convenient for dispensers. Howards' sulphate of quinine is still the popular article with physicians in Canada. Large quantities of German and American manufacture are imported, and it is possible that more of these kinds are sold than of Howards'. An Italian quinine is also to be found on the market. There is no duty now on quinine—a relaxation of the protective policy of our Government in favour of the sick poor, and also, I presume, in consequence of the improbability of anyone starting its manufacture here.

WHOLESALE DRUGGISTS IN MONTREAL.

Montreal can boast of several wholesale drug firms, most of them having well-arranged laboratories, in charge of able men, in which they manufacture fluid extracts, tinctures, and pharmaceuticals generally, besides a few chemicals and the usual specialties. Three of them possess extensive mills for grinding drugs and spices. Messrs. Lymans, Sons & Co., the oldest drug firm in the Dominion, are also manufacturers of paints, linseed oil, oil-cake, plaster of Paris, and land plaster (gypsum), this latter product being very largely used here by agriculturists. Mr. Joseph Bemrose, F.C.S., and Lecturer on Chemistry and Botany at the Montreal College of Pharmacy, has charge of the laboratory of this firm.

Messrs. Kerry, Watson & Co., also a very old firm, in addition to their wholesale drug business, are proprietors of the St. George Drug and Spice Mills, which, under the management of Mr. John Harper, have been long celebrated for the quality of the powders produced. A very good specimen of granular effervescing citrate of magnesia is sent out from their laboratory. Apparatus for its production has recently been fitted up in which very ingenious improvements have been introduced.

Messrs. H. Sugden Evans & Co., a branch of the firm of Evans & Lescher, of London, and of Evans, Sons & Co., of Liverpool, have a well earned reputation, and are heavy importers of English and American drugs. The business is under the direct supervision of Mr. H. Sugden Evans, a

gentleman well and deservedly known to all your English readers. They are doing a large business in lime-juice of the Montserrat Company's manufacture, and to facilitate operations have opened depôts in Toronto and Boston, and I think in New York also. Mr. Pearce represents the house in Ontario. Their grinding-mills, which are in the same building as their general business, turn out annually a large quantity of powdered drugs and spices.

In addition to these three old-established houses we have two others of more recent date, Messrs H. Haswell & Co., and Messrs. Kenneth Campbell & Co. Mr. Haswell was at one time junior member of the firm of Evans, Mercer & Co., and by all accounts his business is rapidly increasing. Messrs. Haswell & Co. are Canadian agents for several specialties having a large sale in the Dominion, and also have a specialty of their own in Martinique lime-juice.

Messrs. Kenneth Campbell & Co., although the youngest of our wholesale drug firms, having been established only about two years, are already winning a first-rate reputation for quality and reliability. The commodious building on Craig Street occupied by the firm is almost in rear of Mr. Campbell's retail business on St. James's Street, the well-known "Medical Hall," next door to the General Post Office. "Skrei" cod-liver oil and Campbell's quinine wine appear to be the leading specialties of this house. On the whole, the province of Quebec is well supplied with wholesale houses. The two junior ones have, without doubt, done much good by forcing the old firms out of ruts which a time-honoured conservatism had almost made sacred. Travellers from these houses penetrate every part of the Dominion from Nova Scotia to British Columbia. Many old druggists are of opinion that the junior houses have not displayed their usual business acuteness in binding themselves to sell at certain figures a list of some 184 articles, principally specialties in current sale. Viewed from a retailer's standpoint, being bound down to sell only at one price looks like a curtailment of healthy competition. It is, however, having a fair trial in this province, all parties having loyally stuck to their agreement; but it has driven a good deal of business into the hands of wholesale grocers, who are quite prepared to undersell the list. Not only have the wholesale grocers opened up a business in these specialties, but they have shown the retail druggists that their stores are headquarters for such goods as arrowroot, indigo, gelatine, spices, aniline dyes, and many other goods which they deal in largely.

Had the wholesale houses met together and, after thorough discussion, adopted certain regulations with regard to terms of credit, discounts, interest, the old-fashioned but very bad practice of selling fractions of a dozen at the dozen price, and so on, they would have had the sympathy and co-operation of the whole retail trade; but I think the attempt to force a pre-arranged price-list upon retailers is a mistake. If the arrangement continues and becomes a success I will inform you in a subsequent letter. Meantime, wholesalers in other cities will look on with interest and watch for the dénouement.

Our wholesale druggists are all men of weight and position in the community, and have a large amount of money invested in drugs. Mr. Henry Lyman for many years represented his ward in the City Council, and it is to his exertions principally that the citizens are indebted for the present fire-alarm system, which is second to none on this continent. He is also an ex-president of the Board of Trade, besides being a bank director, and holding several other important official positions. Mr. John Kerry is vice-president of the Board of Trade, and a member of the Committee of Management of the Montreal General Hospital. Mr. B. Sugden Evans is well known to you as an ex-president of the Pharmaceutical Society of Great Britain.

THE RETAIL TRADE.

To give your readers some idea of the rapid increase of Montreal, I may say that in 1859 there were only 10 retail pharmacies in the city, and now there are 42. The increase in Toronto has been even more rapid. In Quebec city the number of pharmacies is not much more than it was 10 or 20 years ago. There are now 17, and in 1859 there were 8. The first apothecary in Quebec was a Monsieur Hebert, and he carried on business, and also practised medicine, as far back as 1679. This was during what historians call the

heroic age of Canada. Quebec, so far as business is concerned, is a very conservative city, moving slower in the march of progress than any other place in the Dominion, and yet nothing is more enjoyable than a week's sojourn in this mediæval and romantic city of Champlain.

It is my lot to make a pilgrimage there every spring with two or three of my Montreal *confrères* to hold the Pharmaceutical Examinations, and, although the work to be done is exceedingly arduous, nevertheless the half-hour spent on Durham Terrace when the day's business is over, well repays me for my labour. The beautiful view from this charming spot cannot be equalled in the world.

I had intended sending you statistics of the relative imports of drugs from England, Germany, and the United States. I have found this information very difficult to obtain. I am promised some very interesting statistics from the seat of Government at Ottawa, which I will arrange and forward in my next. I will also give you a short account of the new business in non-secret medicines which has recently sprung up in the United States.

CHEMICAL SOCIETY.

DR. PERKIN, F.R.S., President, in the chair.

It was announced that a ballot would take place at the next meeting (December 6).

The following papers were read:—

"On the Estimation of Starch," by C. O'Sullivan. The method may be briefly described as follows: About 5 grms. of the finely-ground grain are successively extracted with ether, alcohol (sp. gr. 0.90), and water at 35°-38°. Fat, sugar, albumenoids, amylams, &c., are thus got rid of. The starch in the washed residue is gelatinised by boiling with water, cooled to 62°, about 0.03 grm. diastase (prepared by precipitating the cold aqueous extract of malt with alcohol) added; the starch is thus converted entirely into maltose and dextrin, and by a quantitative determination of these two products the starch originally present can be calculated. The author states as the result of his experience with the method that the difference in results obtained by any two observers need not exceed 0.5 per cent. of the total starch.

"On the Illuminating-power of Ethylene when burnt with Non-luminous Combustible Gases," by P. F. Frankland. The author summarises his results as follows: Pure ethylene, burnt at the rate of 5 cubic feet per hour, from a Referees Argand burner, emits a light of 68.5 standard candles; the illuminating-power of equal volumes of mixtures of ethylene with either hydrogen, carbon monoxide, or marsh gas, is less than that of pure ethylene; when such mixtures contain 60 per cent. of ethylene or more the illuminating-power of the mixture is but slightly affected by the nature of the diluent; in mixtures containing less than 60 per cent. of ethylene, the illuminating-power is the highest when marsh gas, and lowest when carbon monoxide, is the diluent.

"On the Products of Decomposition of Aqueous Solutions of Ammonium Nitrite," by G. S. Johnson. The nitrogen evolved from alkaline solutions of ammonium nitrite contains no oxide of nitrogen. Nitrogen is evolved from aqueous solutions below 100°; by adding crystallised cupric chloride a continuous evolution of pure nitrogen takes place. When solutions are acid the nitrogen may contain 40 per cent. of nitric oxide. About 2 per cent. of the nitrogen evolved by the cupric chloride is stated by the author to possess peculiarly active properties, and forms ammonia when passed with hydrogen over spongy platinum.

"On the Estimation of Iron by Standard Potassium Bichromate," by E. B. Schmidt. The author recommends the above process; but states that zinc should not be used to reduce the iron, as it interferes with the end reaction with potassium ferricyanide. He prefers Kessler's method of reduction with stannous chloride.

DR. PERKIN, President, in the chair.

The following gentlemen were elected Fellows:—F. A. Blair, F. J. Barr, C. J. Baker, L. Briant, R. G. Durrant, Kamchandra Datta, L. L. Garbutt, A. E. Harris, T. Hart, W. Irwin, S. Johnson, R. Jackson, H. C. Lee, W. H. Martin,

C. E. Potter, B. M. K. Rogers, C. W. Stephens, P. H. Wright, H. A. Wetzel, W. G. Whittam.

The following papers were read:—

On the "Constitution of the Fulminates," by E. Divers and M. Kawakita. When moist-mercury fulminate is treated with strong hydrochloric acid, hydroxyammonium chloride and much hydrocyanic acid are formed. If the fulminate be dry, no prussic acid is formed. The carbon is completely converted into formic acid. No oxalic acid is produced.

"Theory of the Constitution of the Fulminates," by E. Divers.

On "Liebig's Production of Fulminating Silver without the use of Nitric Acid," by E. Divers and M. Kawakita. When nitric acid is passed into an alcoholic solution of nitrate of silver, crystals separate. These are not, as Liebig stated, fulminating silver, but nitrate of silver.

"Note on the Constitution of the Fulminates," by H. E. Armstrong.

"Experimental Investigation on the Value of Iron Sulphate as a Manure for Certain Crops," by A. B. Griffiths. The author obtained from an experimental plot of land manured with ferrous sulphate 56 bushels of beans; a similar plot in its normal state gave 35 bushels. The plants also contained more iron and phosphoric acid in the ash in the first case.

THE MANUFACTURE OF MINERAL WATERS.

A PAPER on the subject of the manufacture of mineral waters was read before the Society of Arts on Dec. 5, by Mr. Thomas T. P. Bruce Warren, analytical chemist. Dr. B. W. Richardson presided, and the audience included a number of mineral water and mineral water plant manufacturers of London. A quantity of machinery to illustrate the lecture had been lent by Messrs. Barnett & Foster, and Messrs. Hayward Tyler & Co.; fruit essences by Messrs. W. J. Bush & Co., Stevenson & Howell, and others, scientific apparatus for testing water, &c., by Mr. Cetti and others. The lecturer certainly did not give in the course of his very lengthy paper very much information which could be of much service to those practically engaged in the business. It would be out of place to fill our columns with these parts of the lecture which consisted of descriptions of machinery, which can be more concisely understood in the various catalogues issued and illustrated at lavish expense by so many enterprising engineering firms. We give as much of the rest of the paper as our space will allow:—

A fact which deserves more than an incidental reference is that the term "mineral water manufacturer" no longer defines the nature of the products now turned out from "soda-water works." Not many years ago ginger, lemons, citric and tartaric acid, and sugar, with about half-a-dozen inorganic salts, constituted what we may call the *materia medica* of the mineral water manufacture. A glance at the interesting collection of specimens sent here by Messrs. Stevenson & Howell, Bush & Co., Lichtenstein & Co., and others will give some idea of the present stock-in-trade of a mineral water manufacturer. As a very few of these materials are derived from the mineral kingdom, it is evident that the word mineral is inappropriate to a large majority of the beverages generally so classified.

There is no doubt a great difference in the suitability of the water supplied by the different metropolitan water companies for the requirements of a mineral water factory. The same remark applies, but with greater significance, to the water supplies of our different towns.

Cases are known where a damaged water-pipe inside a factory has led to serious pollution of the water, although the water as supplied by the company was perfectly good when drawn from their mains. Frozen pipes, and the subsidence of newly-made ground, are not infrequent sources of such accidents. Water drawn from a well may become contaminated by the infiltration of surface water through the upper part of the casing of the well being defective. Fortunately, a defect in a water-pipe laid in the ground becomes too evident to be overlooked; well water, however, may become contaminated without the fact becoming evident; it is therefore safer to apply a few tests as frequently as possible, especially after heavy rains, and following upon

long drought. Deep wells, if lined to a sufficient depth, are quite safe, provided the supply is drawn up through a pipe carried some distance down below the casing, instead of being drawn too near the top of the bore.

The considerations which should guide a manufacturer in sinking a well can scarcely be given here; but in a town supplied with good water, as regards freedom from organic matter, better waters may probably be made from the town supply than may be expected from a well, even if sunk to a considerable depth; for we must not lose sight of the fact that we are generally more liable to infiltration of surface water unless we put down a very costly and perfect lining. Faults from fissures are not infrequent in very deep wells.

Most people have an idea that filtering will render any water fit to drink. There is nothing to be said against using a good and properly constructed filter; a water of ordinary quality may be improved, and, even if free from organic impurities, may leave the filter no worse than when it went in; but the unfortunate thing about filters is that people think that they last almost for ever without being looked to, or that any amount of water may be passed through them.

Other methods of removing or destroying organic impurities are distillation and boiling. The main difficulty in carrying out these operations on an extensive scale is the subsequent cooling, and, in the case of distilling, the cost of condensing.

Boiled water is of great importance, as not only do we tend to remove or destroy organic impurities, but by subsidence a great number of inorganic compounds are removed, such as oxides of iron and manganese, lime, magnesia, and silica. The presence of oxygen is objectionable in the case of waters flavoured with essential oils or other principles liable to change by oxidation. Waters containing ferrous-iron compounds can only be prepared successfully by the careful exclusion of oxygen in every stage of the manufacture.

There are two or three methods in use for bottling waters containing ferrous compounds; one consists in first filling the bottles with water highly charged with CO₂, and then emptying them so as to retain a quantity of the gas in the bottles. A fact of great importance is that most ordinary waters, under general conditions, contain considerably more oxygen than is contained in the same volume of atmospheric air. It is found by experiment that, when the gases are obtained from ordinary water by boiling, the air evolved is much richer in oxygen than atmospheric air is. We learn from this that in a mixture of gases the co-efficient for the solubility of each gas in water has to be multiplied into the number expressing their relative volume pressures in order to obtain the actual volume of each gas absorbed.

Under ordinary circumstances, a litre of good river water may contain about 7 c.c. oxygen and 13 c.c. nitrogen; the same volume of atmospheric air will contain 4.2 c.c. oxygen and 15.8 c.c. nitrogen.

From certain experiments which I have made, and am still carrying out, it would appear as if this oxygen contained in the water acquires an enhanced chemical activity under certain circumstances, and, although I am not able to prove that it becomes ozonised, I am certainly of opinion that the oxidation of oil of lemon in lemonade is in a great measure the cause of deterioration where sound and genuine ingredients have been used. Other substances liable to change by oxidation may, of course, alter in the same way.

In the ordinary manufacture of aerated waters belonging to the saline class, oxygen gas is not likely to do any harm, but it is impossible to regard its presence with indifference where essential oils or other easily oxidised materials are employed.

The seriousness of air-impregnated water has not escaped the attention of manufacturers, and a system of bottling water free from atmospheric air has been recently perfected by Messrs. Barrett and Hayward Tyler & Co.

When a bottle of aerated water contains air, a portion of the contents are ejected with violence when the bottle is opened; it also prevents good aëration with the gas. By the more usual method of bottling this cannot be avoided. The bottle to be filled is placed under a nipple, and the aerated water forced in. When the pressure in the bottle prevents any more liquid pouring in the tap is closed, and the accumulated air and gas allowed to rush out; it is then

replaced securely under the nipple and filled up. In this way the water is bound to contain a very great deal of air.

By the new system the liquid is poured or forced through a tube reaching to the bottom of the bottle, so that, on filling, the air is completely forced out, just as we would collect a jar of the gas by downward displacement, driving out the lighter air before it. Diffusion between the air of the bottle and the gas is avoided completely by the upward pressure of the gas.

By this method, and excluding air from the water, and its ingress in any part of the operation, it is possible to obtain in solution ferrous compounds, which are among the most difficult materials to bottle up without depositing.

Mr. James Packham, of Croydon, has given a great deal of attention to the purification of water by distillation, and informs me that he has no difficulty in distilling all the water required for their extensive trade. After the air has been expelled from water by boiling or distilling, care should be taken to keep it closed up in tanks; it would even be better to impregnate the water slightly with carbonic-acid gas, which would not only give a greater security against the absorption of air, but would, in a great measure, counteract the tendency to contamination when in contact with metals, &c.

As pure water has a much greater solvent-action than ordinary water, extra precaution is necessary to avoid contamination. Mr. Packham uses pure tin pipes, and when other metals are necessary, they are protected by a heavy coating of silver.

Another method of purifying water consists in removing its carbonic-acid gas, whereby the carbonates of lime, iron, and magnesia are precipitated, together with silica and organic matters. This is effected by the addition of lime-water. This method has been rendered more practicable by the application of the filter-press, as carried out under the well-known Porter-Clark process. The presence of an abnormally large amount of earthy carbonates in a natural water is very undesirable; these can be removed by adding a little soda to the water, where such addition is not likely to be objectionable; on standing, the earthy salts are precipitated.

A good natural water for manufacturing aerated beverages should be free from organic impurities as near as can be, for very few waters in a natural condition are absolutely pure in this respect: it should not contain more than 20 or 30 grains of solid matter per gallon, and if it contains over this, it should be capable of being removed by a softening process. It should not contain much air; and the quantity of chlorine per gallon must not exceed 1 to 2 grains for ordinary water, although this quantity is considerably exceeded by deep-well water.

A little experience is required in order to decide on the merits of a water from the results of analysis. An impure water would unhesitatingly be condemned but a very pure water may involve us in trouble almost as serious; so that without going into this part of the subject fully, it would be impossible to give much information which would be generally applicable.

The general plan and arrangement of a mineral water factory must be such that ventilation and cleanliness can always be secured; bad smells from any cause must be an impossibility; all water-ways, drains, &c., should communicate with the outlets to sewers outside the buildings, and be well trapped; any drains in the factory should be closed with movable coverings, so as to admit of their being well cleaned and swept out. Wood flooring, or anything likely to hold moisture or dampness, is unfit; stone paving is preferable to bricks or concrete. No dust or mildew should be allowed to accumulate on the walls or floors; and a current of fresh air should always pass through the parts of the building devoted to the more important parts of the work.

The machinery should be so fixed as to be easily accessible for repairs or cleaning. Whiting should be well dried, and kept away from damp and dust. [The author mentioned the readiness with which whiting absorbs odours and flavours, such as petroleum, and transfers them through the carbonic-acid gas evolved to the manufactured waters.] A plentiful supply of water for rinsing bottles and washing is indispensable.

Some of the patent stoppers were here shown, especially

the patent screw-stopper of Barrett & Elers, and the intermittent screw-stopper of Barnett & Foster. These, the author considers, although originally introduced for bottled beers, bid fair to supersede every other form of stopper for aerated waters.

There is a great difference of opinion respecting the merits of the old and familiar method of corking, and the use of the patent stoppers. I have no hesitation in saying that the driving of the stopper into the contents of the bottle is very objectionable: it promotes a rapid evolution of gas, and, what is still worse, any dust or particles of straw contained in the neck of the bottle finds its way into the tumbler when the contents are poured out. A metal capsule would remove the last objection.

The fact that the screw-stopper can be quickly replaced when a portion of the contents of the bottle has been poured out adds very materially to its merit, the water retaining enough gas to bear opening a second time in a satisfactory state of aëration.

After describing the ordinary machinery in detail, the author, at great length, and with enthusiastic commendation, described the action and merits of the Macdonnell automatic bottling and corking machine, now manufactured by Messrs. Hayward, Tyler & Co.

The quality of a water depends so much on the purity of the gas that I cannot help expressing surprise at the little attention which has been directed to this part of the manufacture until quite recently. By allowing the gas generated in the ordinary way to bubble slowly through a solution of potassic permanganate, or any other powerful oxidising agent, these impurities can be most effectually removed without in any way deteriorating the gas by exchange of contaminations.

The impurities which pass over with the gas from the generator when sulphuric acid is employed are sulphurous acid, sulphuretted hydrogen, carburetted hydrogen, nitrogen, and sulphur compounds, together with the usual impurities given off by commercial sulphuric acid. It is generally considered that by washing the gas twice the impurities can be removed. If a saturated solution of sodic carbonate be used in the second washing, no doubt many of the volatile acid products can be removed by their uniting with the soda and liberating their equivalents of CO_2 .

From repeated experiments I am convinced that the only method for effectually removing these products is by the use of oxidising agents, for when the impurities are taken up by the wash water, we simply drive them out again when fresh gas is passed through.

A perfectly pure whiting can be obtained by exposing freshly-burnt and recently-slaked lime to the air for a few days, or until its causticity is removed, care being taken that the air is fairly good. With pure sulphuric acid the gas thus obtained is exceptionally pure.

We must not lose sight of the fact that the acids employed to decompose our carbonates also contribute to the list of impurities met with in the gas.

I may note here a few improvements which have been made in preparing and purifying the gas. A simple precaution which prevents air getting mixed with the gas is always to keep the generator, and connections with the washer and gasholder, full of the gas. In attempting to get rid of admixed air, manufacturers generally incur a large and needless waste of gas, without securing the desired object.

After charging the generator, the gas should be liberated very slowly, and a little collected into a gas pipette, which is transferred to a gas-jar containing strong caustic potash solution. As soon as the sample of gas examined is entirely absorbed, we may rest contented that no air is present. A simpler plan would be to attach a flexible tube to the generator or gasholder, and to allow the gas to pass into an inverted test-tube filled with mercury, standing in a mercurial trough; a few drops of a strong solution of caustic potash are passed up the tube and agitated; a minute bubble of unabsorbed gas will show when the gas may be considered sufficiently pure.

Instead of allowing the gas to rush in and out of the washer in a stream, arrangements are now in use for breaking the current of gas, and making it pass through a series of perforated diaphragms. The lower part of the washer contains cooled well-boiled water; the upper part is packed with granulated marble, or, preferably, with crystals of sod

carbonate. The gas thus washed is sufficiently pure for almost any purpose.

Carbonic acid is readily soluble in water, and, if present in sufficient quantity, imparts to it a refreshing and slightly exhilarating effect.

The solubility of gas in water is affected by a great variety of circumstances, those of which we have the greatest experience being temperature and pressure; others, which are now beginning to assert their importance, are the pressure of other gases and liquids, and mineral salts, sugar, &c.

The principal thing to guard against in purchasing whiting is an abnormal amount of moisture. It ought not to blacken when strongly heated, nor destroy the colour of a dilute solution of permanganate of potash too rapidly.

To a manufacturer it is a matter of importance to know how to estimate the quantity of carbonic acid in a sample of water. Generally, the little arrangement known as the testing-gauge is used. We must not forget that pressure alone is no proof of the quality of the water. By means of a kind of hollow cork-screw, which has a hole a little way from the bottom, we allow the gas, when the tap is opened, to act upon an ordinary but delicate Bourdon gauge, the pressure being shown on the dial-plate. The action of the arrangement can be easily shown. It may be used as a check against the bottlers, or to compare the products of different manufacturers.

The carbonic acid in a bottle of mineral water, such as soda, potash, seltzer, &c., is partly combined and partly free; we may estimate each portion separately. A large flask containing about 250 c.c. of strong solution of ammonia is fitted with a cork having two perforations; through one of these is passed a bent tube, reaching nearly to the bottom, and to the bent end is attached a flexible tube, connected to a cork-borer, with a few holes drilled a little distance from the end. A tube containing fragments of glass, moistened with ammonia, is inserted into the other perforation, so as to catch every trace of carbonic acid. The borer should be inserted so that the holes are just below the cork; the gas passes into the ammonia, its evolution is assisted by shaking the bottle, and, towards the end, by heating in a water-bath until no more gas passes over. The contents of the flask and absorption-tube are precipitated with calcic chloride, from which the amount of CO_2 can be estimated.

The combined carbonic acid is best obtained by evaporating to dryness the contents of the bottle, and decomposing the residue in one of the little forms of apparatus used for this purpose. Messrs. How & Co. have kindly sent a variety of these. The calcinimeter is an arrangement for measuring instead of weighing the gas. We are indebted to Mr. Cetti for the loan of this apparatus. A slight modification of this instrument, so as to measure larger volumes of gas, ought to be invaluable to a manufacturer of aerated waters.

To make a complete examination of the gases contained in a bottle of aerated water necessitates the use of eudiometric methods. The apparatus designed by Dr. Frankland for the analysis of water residues by the combustion process is eminently adapted for this purpose.

A word or two may be necessary respecting sulphuric acid; on no account should any other acid be employed but the white or colourless acid. If purchased according to density, care should be taken that we are not purchasing a dilute acid, containing fixed sulphates to give it the appearance of being what it is not. A few drops heated on a piece of platinum-foil should leave no residuum.

Care should be taken to prevent pieces of straw, cork, &c., falling into the acid; this can hardly be avoided by pouring from a carboy; a luxury unknown a few years ago is now in use in most factories for decanting the acid, thus avoiding contamination, waste, and danger from spilling. The American syphon pump is the best for this purpose.

The solubility of salts, preparation of syrups, tinctures, &c., are most important subjects to the manufacturer of waters, but are beyond the scope of the lecture, as regards time. These subjects may be dealt with on a future occasion, and also the method of compounding artificial mineral waters from the result of analysis. No one has given so much attention to this branch of the business as the late Mr. William Hooper, of Pall Mall East; the waters manufactured by the present firm have earned a well-deserved distinction. It is no exaggeration to state that we have at present no scientific mineral-water maker; this has been

accounted for by stating that the demand for this class of waters has given place to others. I believe it is due to the fact that we want an enterprising spirit to take up the manufacture of the new mineral waters which have been more recently introduced, in the same way as Mr. Hooper took up the manufacture of the numerous German spas, and which, in nearly every case, he successfully accomplished.

The manufacture of lithia water is a striking illustration to the point. An eminent physician, Dr. Garrod, had written a book on gout, and suggested lithia as a remedy, to be administered as an effervescent beverage. I was sent by Mr. Hooper to inform Dr. Garrod that he would be very pleased to prepare this, and to gain any information I could on the subject. There was absolutely nothing to start upon; carbonate of lithia could only be had in small quantities and at the price of about 24s. per oz., and was scarcely known. In spite of these obstacles lithia water was manufactured and introduced to the medical profession within four days after the publication of Dr. Garrod's book. The demand for lithia water is now very great, and the carbonate can be had at the present time for about 8s. per lb.

The CHAIRMAN in a short speech, described the lecture as a model paper, singularly interesting to all who like himself were interested in the temperance cause. He invited those present not to allow their modesty to check them in offering remarks on the subject.

Mr. MAIGNEN, therefore, in allusion to a recommendation of someone's filter, asked the lecturer if he had ever examined his "Maignen's Filtre Rapide" which had obtained a gold medal at the Fisheries Exhibition. He also mentioned that he had invented a filter for the especial purpose of clearing syrups.

Mr. LLOYD (of the firm of Hayward Tyler & Co.) thought it might be interesting to state that the first machine made by his firm in 1815 was one which would produce about 150 dozen per day of ten hours. They sold last year machines the aggregate productive capacity of which was three million bottles daily, and their large machines would now produce 3,000 dozen per day. He knew one firm which manufactured 17,000 dozens per day. Mr. Lloyd then enlarged on the merits of the Macdonnell machines.

Mr. BUSH (of the firm of W. J. Bush & Co.) claimed that a great deal of the extension of the aerated water trade was due to the introduction and perfection of fruit essences, thus offering a vast variety of flavour to the trade. His firm had largely contributed to that result.

Mr. FOSTER (of the firm of Barnett & Foster) said that to obtain purity in the product they must have perfection in the machinery. The perfection of the machinery was also proved by the amount of carbonic acid they could get the water to take up. The lecturer might have somewhat enlarged the area of his observations in this direction. There was as much competition amongst the makers of apparatus as amongst the manufacturers of aerated waters themselves. His firm had a machine for extracting the air from water, thus allowing more room for the carbonic acid, and to prevent metallic contamination they had done away with the mechanical agitator, and introduced the "Niagara" system. The gas and water were not forced through the perforations, which would mean work and friction on the cranks, &c., but it was raised to a sufficient height, and then falling by gravitation was broken up into spray, thus effecting the necessary admixture without friction. Alluding to his screw-necked stopper he said it was not developed for the purpose of aerated waters, though it was applicable to them, but for malt liquors, and he might inform the Chairman that by his process for removing the air he could produce a malt liquor without alcohol, but still retaining its beneficial properties. When the atmospheric air was removed from malt liquor, the alcohol, being mixed with air, came away with it to a great extent, and the beer was rendered non-intoxicating. Having done that, he charged it with carbonic acid, which made the beer fit for immediate consumption, and prevented after fermentation. Mr. Foster also claimed for his firm the credit of the introduction of "splits," which enabled manufacturers to work all the year round. Mr. Foster urged that it would do more than anything else to promote the temperance movement if publicans and others could be induced to lower the retail prices of aerated drinks.

JOHN ELIOT HOWARD, F.R.S.

TWO months ago the representatives of scientific pharmacy, whose duty it was to award the Hanbury medal, selected Mr. John Eliot Howard as the man who they considered had done the best work in original research in the natural history and chemistry of drugs. That honour, won, as we shall presently show, by a long career of patient and costly, but most valuable labour, was, we may now say, most happily timed. Mr. Howard had secured the respect of the pharmaceutical body universal since as long as many of us can remember, but this public recognition of his services was wanted to crown his long and useful life with the laureateship of pharmacy. The honour was, we believe, most gratifying to him; but his short speech in acknowledging it showed that his life's aim had been not merely to seek and to promote that "knowledge earthly of the mind," but that this had always been subordinate to the striving after that "wisdom heavenly of the soul," which he possessed in so large a measure. He said then, he trusted all who heard him would find the same interest he had found in the study of the works of the great Creator, and he closed his remarks by saying that he esteemed it his highest honour to be a Christian. The medal presented to Mr. Howard indicated the direction of his life's scientific work; his reception of it indicated his character.

Mr. Howard died at his residence, at Lord's Meade, Tottenham, on November 22, after an illness of only two days. Few of those who heard him speak on October 3 supposed that he had passed his three score years and ten. When he died he had nearly completed his 76th year. His father, Luke Howard, died in 1864, at the age of 92.

The funeral at Tottenham Cemetery on November 28 was very impressive. A large number of neighbours, rich and poor, awaited the funeral, and upwards of thirty private carriages followed the hearse. The widow and her eldest son, Mr. W. Dillworth Howard, were chief mourners, and around the grave stood a large number of children, grandchildren, nephews, and nieces. All the surviving members of the firm of Howards & Sons were present, namely, Colonel Howard, J.P., Mr. Theodore Howard, Mr. David Howard, Mr. J. Hodgkin, and Mr. A. G. Howard (as well as Mr. Dillworth Howard, already named). There were also Messrs. Robert Luke, and Eliot Howard, and the presence of many ladies among the mourners was noticeable. Among the private friends of the deceased were the Lord Mayor of London, M.P., Lord Justice and Lady Fry, Mr. W. Fowler, M.P., Mr. Alfred Waterhouse, A.R.A., and his wife, Dr. Wilson Fox, F.R.S., Mr. Cornelius Hanbury, Mr. J. H. Leatham, Mr. Joseph Surr, and others. The President of the Pharmaceutical Society (Mr. Carteighe) and Mr. Walter Hills represented the Society, and Professors Bentley and Atfield also attended. The coffin was covered with beautiful wreaths, one of cinchona leaves being very appropriate. Mr. Surr, writing in the *City Press*, says:—

"The funeral ceremony was impressively conducted by Mr. J. Penstone, an old friend of the late Mr. Howard, and, like him, an earnest, useful member of the Brethren with whom for many years the deceased gentleman had been connected, and whom he addressed the Sunday previous to his death in their usual meeting-place in Tottenham. One striking feature in the cemetery was the number of poor people gathered there, many of whom had been the recipients of Mr. Howard's bounty; and while the address was given the utmost stillness prevailed, and tears involuntarily flowed from many eyes. The Bible Society and London City Mission have lost in him a liberal supporter and earnest friend. The life of Mr. Howard had been, on the whole, a happy one. Solon, in advising Croesus, said, 'Count no man happy till you know his end.' The earthly career of John Eliot Howard has terminated. Spared to a good old age (nearly 76), he had enjoyed 54 years of happy wedded life; only one of his nine children had predeceased him; his scientific and mercantile career had been eminently successful, and he possessed 'that which should accompany old age—honour, love, obedience, troops of friends.' Earth is poorer, but Heaven is the gainer, by the removal of such men."

John Eliot Howard was born at Plaistow, Essex, on December 11, 1807, and was the son of Luke Howard, F.R.S., chiefly known in connection with English meteorology, and author of "The Climate of London," "The Modifications of the Clouds," &c.

In 1798 William Allen and Luke Howard started in business together as "Allen & Howard," the latter having previously carried on the business of a pharmaceutical chemist in Fleet Street on his own account. In 1804 they mutually agreed to separate, William Allen taking the business at Plough Court, and Luke Howard the manufacturing business at Plaistow, which he transferred to City Mills, Stratford, in 1805, where the present firm of Howards & Sons continue, although, of course, the premises have been frequently enlarged in accordance with the requirements of the business.

Mr. Howard was educated at Josiah Forster's School, Southgate and Tottenham, but learned his chemistry at the works, where he occupied his time for some few years before entering the business as an actual partner. This took place on January 1, 1829, and from that time till the end of 1876 (when he became a sleeping partner) he took an active part in the management of the concern.

The firm began the manufacture of quinine in 1824, and thus an opportunity for original study offered itself; and with what result this was embraced is already well known. Mr. Howard was elected a member of the Pharmaceutical Society on May 4, 1853, but his first contribution to the *Pharmaceutical Journal* appeared in 1852, and was entitled "An Examination of Pavon's Collection of Peruvian Barks, contained in the British Museum;" this commenced in the February number of the journal, and ran through the year. The whole paper bears evidence of very careful and conscientious work, and accurate investigations, the numerous footnotes in elucidation of the text simply teeming with information. In this important investigation he had the able assistance and advice of Dr. Pereira, with whom he formed a lasting friendship. About this time he was a regular correspondent of Dr. Weddell, also well known as a quinologist.

In the course of his researches on the subject, he was made aware of the fact that a large collection of barks made by the Spanish botanist, Pavon, and also a manuscript of his were for sale in Madrid, and in 1858 was fortunate enough to secure them both. He then devoted his energies to editing this hitherto unpublished manuscript, and employed the well-known botanical artist, Mr. W. Fitch, to go to Madrid, for the purpose of making accurate delineations of Pavon's specimens in the Madrid Museum. The result was the publication (in 1862) of the magnificent folio volume entitled "Illustrations of the Nueva Quinologia of Pavon, and Observations on the Barks Described." This work has always been accepted as authoritative upon the subjects it treats of, and is long likely to remain so. An immense amount of care and attention was bestowed upon it, in order to make it successful from a botanical and scientific point of view, which result was attained, although we believe that commercially Mr. Howard lost heavily by it.

A few years before this was published (in 1859) Mr. Clements R. Markham (now C.B., F.R.S.) was intrusted by the India Office with a commission to introduce cinchona cultivation into British India. Before maturing his plans of action Mr. Markham sought the advice of botanists acquainted with this special subject. Among these was Mr. Howard, who rendered most valuable services and advice, which were freely continued throughout the whole period during which Mr. Markham had the enterprise in hand. The first analysis that Mr. Howard made was that of some East Indian bark, sent to him on May 23, 1863. The analysis was completed in a few days, and on the 27th he obtained quinine from it, the first obtained from East Indian bark in this country. On the 28th of the same month he reported on the same to the Government. This was the beginning of a long series of analyses which undoubtedly assisted the great enterprise in no slight measure. The reports were published in the "Chinchona Blue-books" for 1866 and 1870. On October 17, 1873, he had the honour and gratification of receiving the following letter of thanks from the Government:—

SIR,—I am directed by the Secretary of State for India in Council to convey to you his best thanks for the valuable assistance you have fre-



John Eliot Howard

quently given both by advice and by performing laborious and difficult analyses, in the promotion of cinchona cultivation in British India. The important and costly works you have published on the cinchona genus have been of essential use, both to those who collected plants and seeds of various species in South America and to the cultivators in India. Your analyses, and the valuable remarks with which they are illustrated, have furnished excellent guides to those who are in charge of the plantations; and the numerous occasions, during a course of years, in which you have given advice and assistance of various kinds have furthered the progress of the undertaking very materially. His Grace* desires me to assure you that the services which you have so zealously and constantly rendered are fully appreciated, and that your aid is considered by Her Majesty's Government to have furthered, in no small degree, the success of this undertaking, which will hereafter be most beneficial to the people of India.

I have, &c.,

CLEMENTS R. MARKHAM.

In 1862 he presented the Indian Government with a fine plant of *Cinchona writusinga*, a variety of *C. officinalis*, 6 feet high, which he had raised in his greenhouse at Tottenham, from seed sent to him by Señor Riofrio, from Loxa. This arrived in India in due course, and many cuttings were eventually successfully taken. This little tree is the original source of all the fine *Writusinga* in the Government plantations. The value of this gift, if measured by the commercial value of its descendants, would probably be enormous. It was no small source of gratification to him to think that his gift had been productive of so much good.

As the result of his investigations and analyses for the Indian Government, he published in 1869 the first part, and in 1876 the second and third parts, of his "Quinology of the East Indian Plantations." Many copies of these were officially purchased by the Indian Government and distributed to planters to assist the enterprise. It should here be noted that the whole of Mr. Howard's services were gratuitously given, with no official reward or acknowledgment beyond the thanks recorded above. Up to his death he was in continual correspondence with planters or men of high repute, such as Dr. Moens, of Java; Dr. Flückiger, of Strasburg; Dr. Trimen, of Ceylon; Mr. Morris, of Jamaica; and others. In the course of his scientific career he became acquainted with the various leading men in this special branch, such as Weddell, Pereira, Herapath, De Vrij, Kerner, and others, and was a member of the Quinological Conference assembled at Amsterdam in 1877.

The last of his published papers was on "*Calisaya Ledgeriana*," which appeared in the *Pharmaceutical Journal* for September 1, 1883. This deserves special attention, from the fact that Mr. Ledger had just paid him a visit, and they had mutually discussed the subject. It is known that he was just beginning a research on "Hybridisation," which, unfortunately for the interests of science, has been brought to an untimely end.

Mr. Howard's scientific distinctions were numerous. He was elected M.P.S. May 4, 1853; F. Linnean Society, February 3, 1857; F.R.S., June 4, 1874; and was, in addition, foreign correspondent of the Académie de Médecine de France, Société de Pharmacie de Paris, *Journal de Pharmacie et de Chimie* (1874); life member of the Société Botanique de France; hon. member Netherlands Industrial Society, of the Austrian Apotheker-Verein, the Philadelphia College of Pharmacy, the Societas Physico-Medica of Erlangen; and hon. correspondent of the Società dei Naturalisti in Modena; and, finally, Vice-President of the Victoria Institute, Adelphi Terrace, in which he took a great interest, and to which he frequently contributed papers on various subjects. On October 3 of this year, as we have just mentioned, the Hanbury gold medal "for high excellence in the investigation of the chemical and natural history of drugs" was awarded to Mr. Howard. The presentation took place at the first evening meeting of the session 1883-84, at Bloomsbury Square, the President of the Pharmaceutical Society, Mr. Michael Carteighe, in the chair. After a brief reference to the origin of this award, the President gracefully alluded to Mr. Howard's eminence in the branch of study to which he had devoted himself, and then the award took place.

Mr. Howard was a frequent contributor to the *Pharmaceutical Journal*, the *Gardeners' Chronicle*, the *Ceylon Observer*, the *Planter's Gazette*, and also to the *Bulletin de la*

Société botanique de France. A good list of his writings may be found in Markham's "Cinchona."

The loss sustained by his death is great, as there are few, if any, now living who unite, as he did, the wide and varied knowledge of the cinchona barks of both worlds. Wherever cinchona is planted there is sure to be a sigh of regret at his death, joined at the same time with respect and admiration for the undoubtedly great service rendered to the world at large by his assistance in the cinchona enterprise, and by his numerous contributions to the literature and scientific development of the genus *Cinchona*.

A sketch of Mr. Howard from a theological point of view, written by Mrs. H. Grattan Guinness, appears in *The Christian* of December 13. We extract so much of it as is not included in the foregoing. Mrs. Guinness writes:—The friend whose name we have placed above is one whose memory we cherish with an almost filial affection as the one from whose lips we first heard, long years ago, the Gospel of salvation, and under whose ministry we received in early youth the light of the knowledge of the glory of God in the face of Jesus Christ. Many hearts in many lands, who loved him for his works' sake, will be grieved to learn that John Eliot Howard, of Lord's Meade, Tottenham, has passed away from earth. His removal, which took place on Thursday, November 22, can hardly be considered premature, for he was 76 years of age, but it was both sudden and unexpected, for such was his bright activity of body and mind to the last, that he might have been taken far sixty—even less.

He preached as usual twice on the Sunday before his death; in the morning, with much solemnity and power, on the words, "For God hath not appointed us to wrath, but to obtain salvation by our Lord Jesus Christ, who died for us, that whether we wake or sleep we should live together with Him." His words deeply impressed his audience, though they little deemed they were hearing his last discourse. "Yes, that is the central point," he said, "*Christ died for us, and we live through Him. What matters it, then, whether we wake or sleep? We live and shall live together with Him.*"

The following day he was out as usual, and went up to London. On the Tuesday he was taken ill; but no alarm was felt till Thursday morning, when, after a few hours' unconsciousness, about noon he quietly breathed his last.

For nearly fifty years he had been engaged in preaching Christ in Tottenham and elsewhere, and for the greater part of this time his pen as well as his voice had been employed in the service of his Lord.

He was born in 1807, and grew up in the society of "Friends," when that society was far less evangelical than it is now.

John Howard's mind was a reflective and reasoning one, and his conscience was often exercised as to his own spiritual state. He sought light, but did not find it till he was nearly thirty years of age; then there fell into his hands a little work published by the Religious Tract Society, entitled "*Jehovah Tsidkenu, the Watchword of the Reformers*," and, like Luther, he became a new creature as he received the doctrine of justification by faith. He was baptized in 1836, and soon after resigned his membership in the Society of Friends, as did many others about the same period. He partook of the Lord's Supper for the first time the same year in the Baptist Chapel at Tottenham, and began at once to preach the Gospel, which he prized, and in which he rejoiced, as only those do who enter into its glorious liberty and light after long struggle with surrounding bondage and darkness.

Two or three years later he, with about a hundred others, formed a Christian church on a basis somewhat similar to that of the "Christian brethren" (as they called themselves, or "Plymouth brethren" as they were called by others), though he never quite fell in with all the views that characterised that body. For forty-six years he freely ministered the Word to this church, and preached the Gospel in their meeting-house, and one of his last acts was to present them with a new and more commodious place of assembly, the old one being converted into a Mission-hall. For some time he engaged actively in controversy with the Society of Friends, seeking earnestly to enlighten his former associates, and that with much success. Other controversies afterwards engaged his mind and pen, for he believed in

* The Duke of Argyll, then Secretary of State for India.

earnestly contending for the faith once delivered to the saints.

He published a series of lectures against Puseyism in 1845, feeling strongly that some of the vital truths of our faith were attacked by the Oxford Tractarian movement, which has since attained such mournfully large proportions. In his later years his controversies were against "the oppositions of science, falsely so called," and he was well qualified in many respects to defend the Word of God against attacks of this character.

In 1872 he joined the Victoria Institute, or Philosophical Society of Great Britain, a society formed in 1865 for the purpose of investigating, fully and impartially, the most important questions of philosophy and science bearing on the great truths revealed in Scripture, with a view of reconciling any apparent discrepancies between Christianity and science. Before the Society he read papers from time to time on a variety of scientific subjects, and in 1865 he published a volume of lectures on Scripture and Science, which has been much valued. He was elected a Fellow of the Royal Society in 1874, in recognition of his scientific researches, and was also Fellow of many other British and foreign scientific associations. Shortly before his death he was presented with the Hanbury Medal, which is bestowed biennially by the Pharmaceutical Society on an individual who may be selected for original research and scientific attainments from any British, European, or American society. In acknowledging this medal, which came to him quite unsought, Mr. Howard spoke of the profound pleasure he had found in the study of the works of God, of his deep conviction of the harmony between revelation and science, and of his sense that the highest honour was to be a Christian.

While pursuing science with ardour and success, Mr. Howard's main and constant occupation was, however, the spread of the kingdom of God on earth. His warmest sympathies were with evangelists, missionaries, and Christian philanthropists. Dr. Gutzlaff, the well-known China missionary, was a constant correspondent, and in the Rev. Hudson Taylor and his great China Inland Mission he took the most unwearied interest; as also in our own Institute and Mission work. Many a young missionary has been cheered and encouraged by his loving sympathy and wise counsel. Mr. Howard was a man of unworldly character and habits. Though opulent he lived very simply, and used his wealth in his Master's service. He died in the same house to which, more than half a century ago, he brought his bride, for though Tottenham has vastly deteriorated since those days, and become one of the least attractive suburbs of London, he never would forsake the little flock which looked to him as pastor, teacher, and friend.

He was married in 1828 to Mara, the daughter of Mr. W. D. Crewdson, of Kendal, so that they had walked as heirs together of the grace of life for fifty-four years.

His warm family and social affections would have made conscious parting particularly painful to him, and it was graciously ordered that there should be no sense of coming separation—no parting words. As one of his own family expressed it, "his bright, keen spirit was permitted to go with his own quick step," out of the things that are seen and temporal, into those that are unseen and eternal. No period of inaction and decay intervened between his long life of active service and his entrance into rest; without a thought of leaving those he loved, he awoke in the presence of his Lord!

The Lord Mayor, Sir Edward Fry, and other well-known gentlemen, were among the thousands gathered at the funeral, which took place at Tottenham Cemetery last week, and very many felt what one expressed, "The best man in Tottenham is gone from among us!" But Christian hope rose above sorrow, and songs of triumph over death ascended to heaven as the precious dust was committed to the tomb, "until He comes."



A FEW HINTS TO YOUNG PHARMACISTS.

BY GEORGE BURRELL, MONTROSE.

A Paper read before the North British Branch of the Pharmaceutical Society, Nov. 14, 1883.

ADVICE is somewhat like the articles the pharmacist is familiar with—more pleasant to give than to take, and yet, like those articles, it has its peculiar province and usefulness. Those who are encased in a robe of self-complacency may think it as superfluous as a tonic would be to one whose appetite and digestion are sound and vigorous; but to the modest, anxious, inquiring young man, who has a healthy desire to better himself in person and in circumstances, and whose conceit has been nipped in the bud by coming in contact with high models, the utterances of experience are not without value.

That class do not listen to the opinions of older men with a self-satisfied smirk, nor show any desire to sneer at those who may not be familiar with modern scientific terminology, the mere scaffolding of knowledge, but, having found that flabby cram will not impart robustness to the understanding, and that the mind needs something more substantial than complicated formulae to live upon, they gladly receive whatever may minister to their intellectual growth. To such I venture to address the following remarks.

It is, some would say, a mere truism to affirm that work is our appointed task, that we must live by the sweat of our brow; and yet the very familiarity of this maxim is apt to make us overlook its deep significance. Healthful and sunshiny labour can be easily and pleasantly portrayed in a glow of poetic beauty, especially by one sitting in an easy chair, with a comfortable dinner in the prospect, and everything cosy about him; but to the man who has so many cubic yards of broken stones to accomplish to meet his weekly needs, and who is pretty familiar with home cares and short commons, it presents a different aspect. At the same time, in spite of all sentimentalising and grumbling, it is an established fact that the stone-breaker, and every man, is happier when working than when idle.

Hear what the most powerful thinker of modern times says on the subject:—

"A man perfects himself by working. . . . Even in the meanest sorts of labour the whole soul of a man is composed into a kind of real harmony the instant he sets himself to work! Doubt, desire, sorrow, remorse, indignation, despair itself, all these, like hell-dogs, lie beleaguering the soul of the poor day-worker, as of every man; but he bends himself with true valour against his task, and all these are stilled, all these shrink murmuring far off into their caves. The man is now a man."

This is the key-note of much of Carlyle's healthiest teaching.

Let us now consider what the work of the young pharmacist is.

Having attained to the dignity of Minorhood, the door of exclusion is opened, and the great highway of life which he has to traverse lies before him. He cannot now make a bicycle of his text-books and compendiums, and patent contrivances for quick and easy intellectual locomotion; his mind has emerged from the feeding-bottle process, and like a child who instinctively kicks and sprawls until he gets rid of the fat which clogs his tiny muscles, our young pharmacist casts off all mental coddling, and steps out on his own legs.

In very truth his real education now commences, which will end only with his life.

In due time he meets with the inevitable obstacles—disappointments, slow progress, small drawings, bad debts, rash purchases, long hours, occasional sleepless nights, dyspeptic twinges, unreasonable customers whom he is obliged to humour, capricious patrons inclined to lord it over him a little, unruly apprentices, unrecadable prescriptions, cutting prices, measures and funnels going to smash, jealous and sometimes not over-scrupulous *confrires*, and so on.

By the time he has encountered most or all of those difficulties, he has found that the teaching of George Street and Bloomsbury Square has to be supplemented by a sterner and deeper philosophy.

His Majesty the Public, whose servant he has become, however appreciative of honest endeavour, is at the same time somewhat exacting, and is apt to forget that the pharmacist has a digestive apparatus and a soul like other men; hence untimely calls at meals and sleeping-hours, and frequent interruptions of religious duties.

I have advisedly presented my subject at this stage in a sombre point of view, to serve as a back-ground to the brighter tints which I can legitimately throw in. Although the training of the pharmacist is not intended to fit him for the highest walks of scientific research, he yet has abundant scope in his particular department to develop and exercise every faculty. If he cannot penetrate to the inner sanctuary of the Temple of Science, he may get a glimpse of it from the outer courts. Every article he deals in invites his careful study, and every preparation of the Pharmacopœia may suggest a fruitful train of interesting speculation; every vegetable within whose tissues medicinal virtue lurks, and every chemical which helps to assuage pain or prolong life, are subject to his skill. Moreover, the exercise of his duties calls into activity a happy combination of intellectual acumen and manipulative dexterity. I do not envy the man who depends entirely on "the quick forge and working-house of thought," for if his career be brilliant, his life is too frequently short. Pure brain-work of the highest class may secure enviable prizes, but it is generally accompanied by much physical torment. A great deal of Carlyle's comfort depended upon his potatoes or oatmeal being properly boiled, and there is no doubt the gloom which overspread so many of his reflections had its origin in the life-long dyspepsia which almost maddened him.

If you want to think out a subject keep your fingers employed in some little job not needing much care, such as cutting labels (not round ones though); and when tired with thinking take the pestle or spatula or test tube and do a little work. Manual occupation seems to assist the action of the mind somewhat in the same way as an instrumental accompaniment does the voice in singing; and it might be an interesting subject of investigation to determine how far the delightful conversational powers of our dear lady friends depends on the ceaseless activity of their fingers. When you have any leisure in the shop make it a rule to read nothing but professional books *there*—except, of course, on Sunday, which should have its appropriate studies. We have an old, large, and interesting pharmaceutical literature, in addition to the current and old numbers of the *Pharmaceutical Journal*, *THE CHEMIST AND DRUGGIST*, the 'Year Book of the British Conference,' and kindred publications, which afford plenty of healthy reading to keep you abreast of the day and to give you hints of great practical value.

Acquire the useful habit of noting any thought suggested by your work or reading, for I believe many fruitful ideas are lost by not being registered at their birth. *THE CHEMISTS' AND DRUGGISTS' DIARY* is very handy for that purpose. While doing everything in your power to perfect your skill as a pharmacist, do not forget that you have the character of an intelligent man to sustain, and for that purpose you have the grandest literature in Europe to help you. Intercourse with the "mighty dead" is the solace of life, and no one need weary when he can at will commune with Shakespeare, Milton, Bacon, and the long and brilliant array of authors who have succeeded them, and whose works are accessible to all.

As our calling requires not only a considerable amount of scientific knowledge, but also an intimate acquaintance with mercantile principles, it is sometimes difficult to make these two elements co-operate advantageously. Our charges do not, like the fees of medical and legal practitioners, rise with our reputation, but are regulated by the "prices current," and by the kind and amount of competition we encounter.

It is this mixture of the merchant with the scientist that gives rise to the most difficult questions we have to determine. If we were adequately remunerated for the amount of skill and care we are obliged to exercise, we might dispense with many articles which anyone can buy and sell; but under present circumstances we are debarred from that and obliged to defend ourselves from the incursions of outsiders by overlapping, to a certain extent, their territory.

It is certainly unjust that one man should be obliged to go through an expensive course of scientific training to secure a legal qualification to sell poisons, while another with little more than the knowledge of the three R's, and no compulsory qualification, should be allowed to sell both *un-scheduled* poisons and compounds containing articles included in the *scheduled* list!

This raises the vexed patent-medicine question in which so many are vitally interested. Shall we, by giving up a part of the profit, keep that branch of our trade, representing a turn-over of probably a million and a quarter sterling or more; or by sticking to the full prices surrender the whole or most of it to outsiders? Shall we allow grocers and others to tempt our customers to buy articles on which they have a large profit, by supplying them with patents, &c., at a little above cost price?

We can sell quack medicines without being quacks—can we *make* as well as *sell* them, without endangering our pharmaceutical integrity? In short, to many, the real question may be—shall we *live* by unbending to a certain extent our scientific dignity, or shall we *die* in the odour of pharmaceutical sanctity?

My own opinion is, the most dignified, most legitimate, and wisest course to follow would be to agitate for the abolition of the patent-medicine stamp. This tax is not only a paltry one for a great country to exact, but it is also an *immoral* one, inasmuch as Government places its imprimatur on the basest as well as on the most unobjectionable compounds. By its removal, secret medicines would stand on their own merits, and the pharmacist would have a fair field for his skill and ingenuity; while the public would be relieved of an unjust imposition and be supplied with safe and efficacious remedies, for half the price they pay for so many which are worthless and mischievous. I am sure that this policy would secure the powerful aid of our medical friends, and save us the experience of the *reverse* of Pharaoh's dream—the sleek and well-fed grocer gobbling up the traditionally lean apothecary!

In conclusion Mr. Burrell urged on all pharmacists to join the Pharmaceutical Society.

PHARMACEUTICAL ILLUSTRATIONS.—No. 1.



ESSENTIAL OILS: THEIR DERIVATIONS, AND SOME OF THEIR USES.*

BY WILLIAM A. WRENN.

WHEN I last had the pleasure of addressing you it was upon the essential oils used in perfumery, and mostly from foreign sources. This time I have taken an allied subject, and, with your indulgence, will extend it over two papers, first treating those essential oils which can be more strictly called medicinal, and are obtained from plants cultivated in England. These English oils, for the most part, command high prices compared with foreign samples. But considerations of the labour, care, and patience of the English drug-farmers, the increasing value of land, the time occupied in carefully selecting the various shrubs, herbs, or flowers before distillation, and the superior aroma and reliable quality of the oils should tend to increase their reputation and their right to the first rank in pharmacy. In a second paper I will notice those oils which are more or less aromatic—perhaps less—used in pharmacy, and will refer to some essential oils produced in the East Indies.

OL. ANETHI, obtained from *Anethum graveolens*.—There are two very distinct kinds of dill seeds in commerce, although both are regarded as coming from the same species of *Anethum*. The coasts of the Mediterranean, Crimea, Northern Asia Minor, and India furnish the largest supply. The East Indian seeds are called "Sowa seeds," and are nearly always so termed in drug-catalogues. Only a small quantity of dill seeds are grown in England. At Market Deeping rather more than 10 acres were under cultivation this year, and about the same extent for some few years. The grower there has had the misfortune of utter failure of the crop twice in the last five years. About half the crop is reserved for sale as seed, and half for the distillation of the essential oil. The seeds are also grown in the neighbourhood of Beddington, in Surrey, and at Hitchin. The average yield of oil is 3.5 per cent.; when freshly distilled it is almost water white, changing gradually to a deep straw colour. When allowed to oxidise slowly by long contact with the air the original odour is completely lost, and the oil can then be scarcely distinguished from that distilled from "caraway chaff."

The oil is distilled in England from the seeds, when scarcely ripe, about the end of August and in the month of September. The specific gravity I have found to vary considerably—from .812 to .858—and this can partly be explained. When the oil has been distilled from the same bulked sample I have noted a difference in the specific gravity. This led me to suppose that by distilling at varied temperatures a light and a heavy oil could be obtained. I therefore submitted some of the oil to distillation, and found that the first distillate was 6 per cent. lighter than the after-product, the temperature being raised upon the removal of the first half. This experiment was made with oil obtained from Indian seeds. Some English oil, or oil distilled from English-grown seeds, was similarly treated, and this, too, gave different specific gravities in first and after distillates. The lighter oil had by far the superior odour, and I think this will explain the meaning of the term "extra strong," applied to certain brands of foreign essential oils.

Oil of dill is not used to any very great extent, the distilled water in England and on the Continent and an infusion in India being the usual form of administration. It is practically unheard of in American pharmacy.

OL. ANTHEMIDIS, from *Anthemis nobilis*.—Only a very small quantity of this oil is distilled either here or on the Continent. A very decided change takes place in the colour of the freshly-distilled oil, which is then of a very peculiar greenish-blue, and I think unique. This rapidly changes to deep straw colour. In England the oil is distilled from the entire plant, and its colour is as just described. The foreign oil is brownish-yellow in colour, but whether it is distilled from the flowers or the entire herb I am not in a position to state. The oil is contained in largest quantity in the ligulate florets. Sp. gr., .979 and .983 in the two samples before me. The old oil is a little lighter, owing to a deposit

which is thrown down in considerable quantity, similar to that deposited from oil of bergamotte.

The oil is an antidote in cases of poisoning by strychnine, acting as a preventive to tetanus and reflex excitability.

Although tonic and stomachic properties are attributed to the infusion and extract, they are almost useless.

OL. CORIANDRI, from seeds of *Coriandrum sativum*.—The oil is ordered in the Pharmacopœia in one preparation only—syrup of senna—and the powdered seeds with nauseous preparations of senna and rhubarb, chiefly to conceal the flavour, and remedially as a carminative. The fruits yield only .5 per cent. of essential oil, but a much larger percentage of fixed oil is stated to be obtained—about 13 per cent.

Corianders are grown in the Eastern counties, and from these the limited quantity of oil required is distilled. From English distillers I have received the answer to my inquiries as to quantity of oil distilled in 1882 and 1883, *none*. The foreign oil is chiefly in use, and of a very indifferent aroma.

OLEUM CARUI, from the fruits of *Carum carui*.—This is distilled in England chiefly from foreign samples. It would be difficult to say the amount actually distilled from English-grown fruits, but the following facts will give an idea. One grower grows caraway on about 8 acres, and distills the whole; a second cultivates it on 10 acres, and distills about half his product; while a third, whose distillates of most essential oils are very extensive, grows none himself, but purchases a considerable quantity grown especially for him by his relatives and others in his immediate district.

The yield of oil varies from 3 to 7 per cent.; specific gravity, .952 to .966. Almost colourless, or slightly tinged with yellow. It consists of two bodies—a thin oil, termed "carvol," and a camphor-like body, "carvene," which, according to Hanbury, can be obtained when treating the oil with alcoholic sulphate of ammonium. I have obtained some in a similar way, as bergaptene, from oil of bergamot, by substituting hydrochloric acid for nitric acid (*vide* "Half-hour with the Flowers used in Perfumery," CHEMIST AND DRUGGIST, vol. xxv., No. 2, page 65). This substance *carvene* must not be confused with oil distilled from caraway-chaff, called "oil of *carven*." It is a very inferior oil; in point of fact, the smell of caraways is hardly perceptible, and it is used largely for scenting soaps and hair-oils. It is imported chiefly from Germany.

The oils of caraways and coriander do not improve by being kept longer than a year; if this time be exceeded a disagreeable odour is observed, which is finally not much different from oleum pini sylvestris.

The dose of the oil is 2 to 5 minims. It is added to cathartic pills, and used to allay the griping action of purgatives.

OLEUM MENTHÆ PIPERITÆ, obtained from *Mentha piperita*.—I will chiefly confine myself to English cultivation. The produce of the United States is enormous, and a considerable quantity is grown in France. The area under cultivation in England in 1883 was:—Neighbourhood of Mitcham, about 250 acres; Cambridgeshire, about 200 acres; Market Deeping and neighbourhood, about 300 acres; Hitchin and neighbourhood, a few acres only. The herb is distilled in the months of August and September, when the flower-buds are just opening.

The product varies very much according to the dry or wet state of the herb: as a rule, from .2 per cent., and, in exceptional cases, as high as .9 per cent.

Specific gravities vary from .845 to .915. White needle-shaped crystals, called "peppermint camphor," and almost identical with menthol crystals, now so largely inquired after as a neuralgic remedy, can be obtained by submitting oil of peppermint to 20° or 25° of frost. They are entirely soluble in ether, alcohol, and bisulphide of carbon.

Last year (1882) was a deficient crop, not so much in the yield of essential oil per still as in the small amount of flowers. This year (1883) there was much more flower, but not a very much greater produce per still. In fact, peppermint was a very large crop; the deficiency was mainly due to the cold, damp July.

The ground must be well drained, or the quantity and quality of the oil will be seriously affected.

It is always noticed that a wet July interferes prejudicially

* Read before the Chemists' Assistants' Association, November 28.

with the yield of oil, even when fine and warm weather follows, as was the case this year.

Peppermint is useful for the relief of nausea and flatulence, and is a grateful adjunct to medicines having objectionable tastes. Its use in confectionery far exceeds its application in pharmacy.

OLEUM PULEGII ANG. is chiefly distilled in the Southern county, and OLEUM MENTHÆ SATIVÆ ANG. in Cambridgeshire. The former is cultivated more for the dried herb than for distilling. Neither, however, is largely cultivated in this country, supplies, for the most part, coming from France, Germany, and America.

OLEUM RUTÆ, obtained from the evergreen shrub *Ruta graveolens*.—It is only cultivated to a very limited extent, Mitcham and its neighbourhood being, perhaps, the only source.

The leaves require to be banded with care, or they will cause painful swellings. If bruised and applied to the skin, violent inflammation is produced, and, if eaten, excoriation of the mouth and throat.

The oil is of a light buff colour, becoming a dark brown on keeping; the specific gravity varies from '850 to '910. The odour is very disagreeable. A weak solution of ammonia is the best means of removing it from the hands, and at the same time of allaying the irritation.

The dose of the oil is from 1 to 6 minims, and, of the powdered leaves, $\frac{1}{2}$ to 1 drachm. Although enjoying in earlier days a reputation as an anti-spasmodic, anthelmintic, and stimulant, it has, from the uncertainty of its action, given place to more reliable remedies.

OLEUM SABINÆ, distilled from the tops, leaves, and galbuli of *Juniperus sabinæ*, which is cultivated in England.—It is grown largely on the Continent, and particularly in that latitude from the Pyrenees to the Caucasus.

The product of oil is about $\frac{1}{2}$ to $1\frac{1}{2}$ per cent. The wood does not yield any oil.

Specific gravity, '895 to '920. Samples have frequently been met with adulterated with turpentine, which may be detected by ascertaining the solubility in alcohol. By adding a noted quantity to a pure sample, and comparing the degree of solubility, the extent of adulteration can readily be proved.

Oleum absinthii, oleum rosmarini, and oleum pulegii are distilled in small quantities. Yields of oils very considerably.

I should like to mention again the subject of LAVENDER cultivation. The main cause of the scarcity of lavender is the loss of plants occasioned by a disease which attacks them visibly in the summer and autumn, the first indication of which is a withering of the leaves, commencing on a small branch and extending throughout the whole plant.

On pulling a plant from the soil on the first appearance of disease, the pith in the small roots will be found discoloured, and sometimes almost black, indicating that the disease commences in the ground.

One grower writes, "When I commenced growing lavender in 1847, it had not appeared, and for more than twelve years I do not remember to have lost a single plant from this cause; now the complaint has extended throughout this country. We cannot now depend upon the plants lasting more than three years, the first year, even under most favourable circumstances, only paying expenses of cultivation, let alone rent of the land."

There has been a marked decline in the number of acres under cultivation the last year. Mitcham and district, 25 to 30 acres; and at Hitchin, Messrs. Ransom & Perks, the two growers there, about 65 acres; the outlying districts and every other source not bringing the total number of acres above 120.

In concluding I have to express my very best thanks to Mr. W. Ransom, of Hitchin; Mr. Holland, of Market Deeping; Mr. Jones, of Carshalton, Surrey, and other cultivators who have sent me statistics and very material information embodied in my paper.

WATERPROOF BOOTS.—A *Lancet* correspondent quotes from the *Hygiène Pratique* that boots and shoes may be rendered waterproof by soaking them for some hours in thick soap-water. The compound penetrates the leather, and there forms a fatty acid which renders it impervious to water.

PROPRIETARY ARTICLES.

TO attempt to enumerate all the so-called proprietary articles now put up by chemists, and give working formulæ for them, would be almost impossible; but a general line, indicated by the neighbourhood in which a chemist has cast his lot, may be pointed out, and is now to a very great extent followed by chemists.

The following formulæ may prove useful to assist in cases where no good working formula for popular preparations are in use. They may be classified as Remedial, Toilet, and Household.

Remedial Agents.

I.—Quinine and Iron Tonic.

No. 1.	
Quinae disulph. . .	gr. vi.
Tr. ferri perchlor. . .	3ij.
Glycerini . . .	3iv.
Aquæ chlorof. ad . .	3vj.
3ss. dosis.	
No. 2.	
Ferri et quinae cit. . .	3ss.
„ ammon. cit. . .	3i.
Liq. strychniæ . . .	℥xxx.
Tr. quassia . . .	3ss.
Aquæ chlorof. ad . .	3vj.
3ss. dosis.	

II.—Iodised Sarsaparilla (Blood Mixture).

Potassi iodidi . . .	3ss. gr. x.
Potassæ chloralis . .	3ss.
Liq. arsenici . . .	℥xxiv.
Sp. chloroformi . . .	3ij.
Dec. sarsa. co. ad . .	3vj.
3ss. ter die.	

III.—Compound Bismuth Mixture, for Indigestion.

Liq. bismutbi . . .	3vj.
Potassæ bicarb. . .	3i.
Tr. nucis vom. . .	3ij.
„ chlorof. co. . .	3i.
„ Calumba . . .	3ss.
Aq. ad . . .	3vj.
3ss. 11, 4, and 8.	

IV.—Balsam of anised.

Oil anisi . . .	3j.
„ cinnam. . .	℥xx.
„ coriand. . .	℥x.
Tr. benzoin co. . .	3j.
„ camph. co. . .	3ij.
Oxymel scillæ . . .	3vj.
Mellis vel syrupi . .	3vj.
Mucilag. tragac. ad .	3xx.

Dissolve the oils in the tinctures and add to mucilage, then well shake in other ingredients. Dose, 3j. every 4 hours.

V.—Compound Essence of Linseed Anised, Senega, Squills, Tolu, &c. (Poison.)

Chlorodyne . . .	℥xliv.
Oil anisi . . .	℥liv.
Tr. tolu. . .	3ss.
„ senega . . .	3ss.
Oxymel scillæ . . .	3ss.
Infus. lini. ad . .	3vj.

Add the oil of anised, dissolved in the tr. tolu. to the inf. linseed; then the chlorodyne and other ingredients, keeping the bottle well shaken all the time. Dose, 3j. to 3ij.

VI.—Neuralgic Pills.

Phosphori . . .	gr. $\frac{1}{2}$
Strychniæ . . .	gr. $\frac{1}{5}$
Ferri reduct. . .	gr. j.
Quinae sulph. . .	gr. j.
Zinci val. . .	gr. j.

Ft. pil. Dose, j. 4 ter horis.

VII.—Invigorating or Tonic Bitters, composed of Hops, Calumba, Buchu, &c.

Tr. nucis vom. . .	3j.
„ buchu . . .	3j.
„ aurantii . . .	3ij.
„ humuli . . .	3iv.
Inf. quassia conc. . .	3ij.
„ calumba . . .	3ij.
„ gentiana . . .	3ij.
Aq. chlorof. ad . .	3vj.
3ss. dosis.	

VIII.—Toothache Tincture.

Sp. ammon. co. . .	3ij.
Oil. caryoph. . .	3ij.
Tannin . . .	3ss.
Mastich . . .	3ss.
Tr. opii . . .	3ij.

IX.—Chilblain Liniments (Unbroken).

No. 1.	
a. Potassii iodidi . .	3iss.
b. Sapo mollis, P.B. .	3ij.
c. Tr. cantharidis . .	3j.
d. Glycerini . . .	3vj.
Aquæ . . .	3vj.

Dissolve a and b separately in q.s. of water, and add c and d and oil. geranium to perfume, and liq. cocci to colour.

No. 2.	
Bals. Peru . . .	3j.
S.V.R. . . .	3iv.
Acid. hydrochlor. . .	3j.
Tr. benz. co. . .	3j.

No. 3.	
Chilblain lotion . .	3j.
Plumbi acet. . .	3j.
Zinci sulph. . .	3j.
Glycerine . . .	3ij.
Aq. rosa ad . . .	3vj.

Boil together for fifteen minutes.

Household.

Baking Powder.

No. 1.	
Acid. tart. . .	3 lbs.
Powdered rice . . .	8 lbs.
Sodæ bicarb. . .	4 lbs.
Magnes. carb. . .	$\frac{1}{2}$ lb.

No. 2.

(Slow Rising.)

Potassæ bitart. . .	8 oz.
Sodæ bicarb. . .	6 oz.
Pulv. oxyd. . .	8 oz.

Liq. Cocci.

Coccus cacti . . .	3j.
Liq. ammon. . .	3iiss.
Sp. tennior . . .	3xv.
Macerate seven days and filter.	

Sauce.

Garlic . . .	7 oz.
Shallots . . .	7 oz.
India soy . . .	1 gall.
Vinegar . . .	6 galls.
Mace . . .	2 oz.
Cloves . . .	2 oz.
Capsicum . . .	4 oz.
Boil together for fifteen minutes.	

Furniture Polish.

Ovi alb. . .	3
Oil linl . . .	3j.
Sp. vini meth. . .	3v.
Acid. mur. . .	3j.
Acetum . . .	3j.
Emulsify 1 and 2, and add other ingredients gradually, shaking well.	

Toilet Articles.

Hair Dye.

Solution No. 1.

Acid. pyrogall.	gr. x.
Aque destillat.	3iss.

Solution No. 2.

Argent. nitras pur.	3ss.
Aque destillat.	3i.
Each to be diluted to colour required.	

Hair Restorer.

Sulph. precip.	3ij.
Plumbi acet.	3ij.
Glycerini	3iss.
Aque rose ad	3viij.

Nursery Hair Lotion.

Sodæ bihorat.	3j.
Glycerini	3iv.
Tr. canthar.	3ij.
Aq. mellis	3ij.
Infus. quassæ ad	3xxij.

Hair Wash.

Potassæ subcarb.	3ss.
Sp. ammon. co.	3ss.
Tr. canthar.	3j.
Glycerini	3i.
S.V.R.	3j.
Ol. rosmar.	3j.
„ limonis	gtt. xv.
„ bergamot	gtt. xv.
Aque ad	3xl.

Brilliantine.

Ol. ricini opt.	3iv.
S.V.R., 60 o.p.	3viij.
Ol. neroli	gtt. vj.
„ rose geran.	gtt. x.
„ verbenæ	gtt. vj.
Ess. limonis	7ss.
Croci to colour.	

Violet Powder.

Pulv. amyli	4 lbs.
„ iridis	1 lb.
Mag. carb. levis	3ij.
Ol. gerani	gtt. xx.
„ neroli	gtt. x.
„ amygd. ess.	gtt. iv.
„ verbenæ	gtt. vj.
„ lavand.	7ss.
„ bergamot	3ij.

Glycerine Jelly.

Gelatini (Cox)	3ij.
Glycerini	3xxiv.
Aq. rosæ	3xxiv.
Ol. rose geran.	gtt. xij
For pink, colour with liq. cocci.	
N.B.—Filter whilst hot, and keep before fire or in water-bath whilst filtering.	

Hand Lotion.

Acid. acetic. fort.	3ss.
Glycerini	3ij.
Eau de Cologne	3ij.
Aq. flor. aurant.	3ij.
„ ad	3xxiv.
Colour pink with liq. cocci.	

Extract of Limes and Glycerine.

Ol. amygdal. dulc.	2 lbs.
Aque calcis	2 lbs.
Cera alb.	3i.
Glycerini	3ij.
Ol. verbenæ	3j.
„ limonis	3vj.
„ bergamii	3ij.
Dissolve wax in oil, and add aq. calcis, gradually shaking vigorously.	

Hair Lotion (Acetic).

Acid. acetic.	3iv.
Glycerini	3ss.
Eau de Cologne	3ss.
Tr. lytte	3ss.
Aq. rosæ ad	3viij.

blished. The instruction at the school consists in lectures on pharmacy and chemistry, delivered at stated periods by one of the medical officers. The senior dispenser directs practical dispensary work, while the student gathers knowledge of hospital routine by daily rounds through the wards with the medical staff. At the end of his apprenticeship the dispenser, at his choice, may proceed, after satisfying the requirements of law, to do business on his own account. Or, if his final examination, conducted at the school by the medical officers, warrant such a course, he is recommended as a candidate for the Government service, and, on a vacancy occurring, he receives appointment either as dispenser of a hospital or manager of a Government dispensary.

While the preamble to "The Sale of Drugs and Poisons Law" sets forth the public utility of the Act, one of its chief aims is to protect the qualified dispenser. The licensing examinations are held in Kingston periodically, under the direction of the superintending medical officer, and, as the examiners (a physician and surgeon and an apothecary practising pharmacy) do their work impartially, the apportioning of the wheat and tares to their respective places receives due attention.

Since the law came into force, two years ago, several convictions have been obtained by the police against unqualified traders, and legal traders, too, have been made to answer for non-registry of poisons, and other irregularities in contravention of the law. "Rough on Rats" formed the subject of prosecution not long ago, when one of the leading druggists of Kingston was charged with not recording sales of the article. The island chemist gave in evidence that, on analysis, he found the rat poison to consist entirely of arsenic, mixed with lampblack to disguise the whiteness of the former substance.

English is the language in use throughout the island, but a chemist and druggist fresh from England would have to adapt his manners to those of the people if he would carry on business in the country parts, where his customers would be chiefly the peasantry. He would also be required to give attention to the names of the medicines in common demand, such as "body-grease" (verdigris), "fine and coarse salt physic" (the sulphate of magnesium and sodium respectively), "blue butter" (mercurial ointment), "wine punch" (antimonial wine), "corrodine supplement" (perchloride of mercury).

At present there is not sufficient pecuniary inducement to encourage the migration of English assistants, salaries not being higher than those paid in the mother-country.

VETERINARY.

IRON MEDICINE FOR HORSES.

The following suggestions have been sent to us by "Winchester Quart":—

Chemists who are in the habit of supplying drugs, &c., to veterinary surgeons will have experienced the want of a cheap substitute for sulphate of iron possessing a smaller amount of astringency for a given equivalent of iron. The following solution, which is easily prepared, will be found to supply that want.

Take of liquor ferri perchlor. fort. 5xxx., dilute with two pints of water, and add liquor ammonia in slight excess; allow to stand one hour, and wash the precipitate by decantation until the washings give no precipitate with nitrate of silver solution; throw the precipitated oxide of iron on a filter, and drain well.

Now dilute 5 oz. more liquor ferri perchlor. fort. with 1 pint of water and dissolve in it the precipitate obtained above, and make the solution measure 140 oz.

The result is a dark red-brown liquid, 1 oz. containing an equivalent 32 grains of ferric oxide.

The dose for horses and cattle is 1 to 2 oz. diluted with water to 10 oz.

An excellent tonic mixture is made by dissolving the chlorides of any of the cheaper cinchona alkaloids in this solution, with the addition, if necessary, of a few drops of dilute hydrochloric acid.

In relation to sulphate of iron, 1 oz. of the above solution contains the same weight of iron as 68½ grains of sulphate,

THE PAST AND PRESENT STATE OF PHARMACY IN JAMAICA.

(FROM A RESIDENT PHARMACIST.)

JAMAICA, November 5.

PRIOR to emancipation the true dispenser existed only in name—the native "hot-house" (slave-hospital) nurse, who boiled physic under the direction of an adept herbalist, or administered medicines compounded by the English doctor, being his only representative. This individual, from his "hot-house" experience, soon became the full-fledged dispenser, dubbed by some "doctor"; and, being considered by his surroundings an important functionary, he continued for some time after the abolition of slavery to dispense medicines after his own fashion. Emancipation, however, brought with it increased civilisation, and the "hot-house doctor" felt bound to surrender to enlightenment, or to retire to some remote country district, where his knowledge and skill, finding but poor sustenance, ran their natural course.

In process of time inducements offered, and qualified practitioners saw fit to migrate. At first they were their own dispensers, but abundant practice moved them to initiate young men in the art of dispensing—its embryo form; and, if we except the few foreign chemists and druggists who settled here in business within the past twenty years, together with a mere sprinkling of native druggists whose training was above the ordinary, Jamaica could practically boast of no other class of dispensers than that described above. The nutshell knowledge of these dispensers did not seem to please everybody, as, later on, we find some medical practitioners setting themselves the task of training young men with more thoroughness than heretofore. But even at this stage pharmaceutical education did not reach perfection, as, some years ago, in a debate in the Legislative Council, the subject was brought up, and suggestions were formulated as to the best means of educating a number of competent dispensers without much additional expense to the country. Accordingly, the dispensing-school attached to the public hospital, Kingston, has been esta-

and whilst this quantity of sulphate contains the equivalent of $23\frac{1}{2}$ grains of sulphuric acid to act as an astringent and irritant, 1 oz. of the solution of oxychloride only contains the equivalent of $11\frac{1}{2}$ grains of hydrochloric acid.

WORMS IN HORSES: HOW THEY ORIGINATE, AND A SIMPLE CURE.

By Henry Higginson, New Ferry, Birkenhead.

Many years ago my wife had a favourite black horse, he was nearly thoroughbred, and had a coat as smooth and as sleek as a mole in summer. The autumn being far advanced, and his services not being again required until the spring of the year, he was turned out for the winter at the latter end of November. He was sent to a large field, which was up to the knees in coarse grass, and there was a large stack of hay of a similar quality in one corner of it. It proved to be a very severe winter (1845-46, I believe), the snow lying on the ground for many weeks, so that he must have fed from the stack during the time it (the snow) lay upon the ground.

When taken up in the first week in April he was scarcely recognisable, for he looked more like a half-bred, in-foal, cart mare, with a coat several inches long, than a son of the celebrated Paul Potter—which he was. In those days I was in the habit of driving down to Chester, a distance of 30 miles, on "Cup Days," and, being anxious to get him in good condition for that event by the first week in May, he was put to feed on good sound hay and a liberal allowance of corn during the day, and a substantial bran mash at night. Shortly afterwards I perceived he had a slight cough; I then substituted a linseed mash for the bran one, but he would not look at it, so a little was given him with the bran and gradually increased each night, until he very soon became so fond of it that he ate it *per se* with avidity, and was in fair condition by the time I wanted him.

On driving down to Chester, when about half-way there he voided a large quantity of rubbish that smelt so offensively that I got out of my dog-cart to examine it. It proved to be a mass of dead worms embedded in slime, sufficient to fill a gentleman's hat!

Conclusion. No doubt the worms were contracted from the coarse herbage and hay, and the unusually rough coat and short cough indicated their presence, and that the slimy and slippery nature of the linseed mashes detached them from their hold of the intestinal canal and expelled them *en masse* mechanically.

But what about the large quantity of slime; what was it? Was it the natural secretion from the bodies of the worms themselves, or was it the secretion from the mucous membrane lining the large intestines? It could hardly be the mucilage of the linseed (although that is very tenacious) after passing through the digestive organs. Whatever it was, it no doubt destroyed the worms by closing up their pores, and thus asphyxiated them—it being well known that the worm is a breathing animal. The horse was allowed to live to an extreme old age, but no more worms were ever afterwards known to come from him.

RHEUMATISM IN THE HORSE.—A writer in the *Boston Medical and Surgical Journal* records a case of rheumatism in the horse in which salicylate of soda administered in drachm doses every two hours was of the greatest service. Most marked improvement followed treatment for 24 hours, and in ten days the animal was as well as ever.

PREVENTION OF FOOT-AND-MOUTH DISEASE.—Mr. Priestman, M.R.C.V.S., of Holloway, communicates to the *Agricultural Gazette* his method of preparing and administering carbolic acid as a prophylactic treatment of foot-and-mouth disease, and the editor of the journal says:—

"We have the best authority for saying that this treatment has been found serviceable both as a preventive and a curative agency; and it is a public-spirited and unselfish act of Mr. Priestman thus to make it public."

The communication is as follows:—

Imix 1 lb. best soft soap with 16 fluid ounces of carbolic acid. If occasionally shaken, the soap will soon become dissolved, and the mixture fit for use. Four measured ounces of this solution are mixed in eight quarts of cold water, and one quart given daily (as soon as the disease is observed) to every one of the herd for four consecutive days, continuing it daily to those only that show signs of the disease.

The same strength as administered I find is the best dressing for the feet, a small portion being applied daily.

Diet is a very important item. I recommend pulped wurzel and wet bran only (and that in moderate quantities) until the disease has subsided.

I order unslaked lime to be spread daily inside and around the entrance to all sheds, and outside the piggeries.—H. PRIESTMAN.

ADMINISTRATION OF MEDICINE TO DOGS. A "F.R.C.V.S.," writing in *Land and Water*, gives the following advice:—

Administration of Medicine.—Drugs are given to dogs either in the form of powders, pills, or draughts. Powders are very simple, and if small and tasteless are easily given by throwing them into the back of the mouth. Larger powders, not of a disagreeable taste or smell, may be mixed with the food. Pills are the handiest form in which drugs can be given, because we are certain of the exact quantity an animal gets when he swallows it. Powders mixed in food may be left in whole or part, and draughts may be spilled. Of course there are many agents which cannot be made into pills. When possible we should adopt that form. Pills may be given by force or artifice. To force a pill, open the dog's mouth by pressing his cheeks between his teeth with the left hand, then drop the pill as far back as possible, and give it a push with the finger of the right hand. This method is most easily effected with a large pill. To deceive a dog into taking a pill, the medicine should be in as small a compass as possible, and buried in some article which the animal is likely to bolt. Meat is best. The surest way of doing it is to cut three pieces of meat about the size of hazel nuts—cubes, not thin slices. Make a hole in one piece, and bury the pill in it. First give a piece without the pill, so that the animal on biting it finds nothing unusual. The first piece is always received with suspicion and bitten. Next give the piece containing the pill, and at the same time show the third piece, which causes the dog to more quickly bolt the all-important morsel that he may get the third bit.

Fluid medicines may be given from a spoon or a bottle when they are of a nature such as to prohibit their being added to articles of food. In using a spoon, force the mouth open with the left hand, and with the right place the spoon against the roof of the mouth. By firmly keeping the spoon against the upper jaw the animal's head is kept up, and the chances of any fluid being spilt are lessened. Large dogs and bad tempered ones are more easily drenched by first placing a tape muzzle on the nose and then using a bottle. The head is raised, the lip on the side drawn up above the tape so as to form a funnel, in which the fluid is poured a little at a time. Fluids should never be forced on a dog with a sore throat, as they may then cause choking. Caustic or irritant substances, such as ammonia or turpentine, should always be well diluted in a good solvent before being given; and volatile substances, such as ether, should never be mixed with warm water, as there is not only great loss of the agent, but the fumes are very irritating. Medicines may also be administered by injection under the skin, by rubbing them into the skin and by enema. There are so few cases in which these methods are advisable that we need here enter into no details. The more easily and quietly medicines are given the better. Those who know most about them employ them least.

Obituary.

FISHER.—On December 6, Mr. Thomas Fisher, Chemist and Druggist, Otley. Aged 72.

LEHMANN.—On October 6 last, at Shanghai, China, Paul Adalbert Lehmann, late of Mactavish & Lehmann. Aged 31.

PEREIRA.—On November 14, at Mayfield, St. James's Road, Tunbridge Wells, Louisa Ann, widow of the late J. Pereira, Esq., M.D. (author of *Materia Medica*, &c.).

TREATMENT OF WARTS.—Two French doctors (Champonière and Foussegrenes) have stated that they have cured warts by the internal administration of twelve grain doses of calcined magnesia. They cannot explain the action of the medicine.

submitted to the trade. None but the members of the Pharmaceutical Council had any opportunity of discussing the proposed amendments of the law, and it cannot be said that the proposals submitted were entirely satisfactory. The Council had aimed to take advantage of their opportunity to modify the conditions of membership of the Society in such a manner as to gain certain advantages, and they also wanted to take powers for establishing the "curriculum," which some among them have come to regard as the Promised Land of pharmacy. The Bill sent in to the Privy Council was therefore weighted with some eight or ten clauses intended to effect these purposes. We printed the Bill in full in February. Briefly its objects may be given as follows:—

1. To create a new schedule of "poisonous" articles, to be labelled with the word "poisonous," and with name and address of seller when sold. The sale of these articles to be open to anyone. Those named in the schedule were sulphuric, hydrochloric, nitric, and carbolic acids, and solution of chloride of antimony.

2. Wholesale dealers to keep a record of all sales of poisons for twelve months.

3. Patent medicines containing any poison to bear a poison-label, and to be sold only by registered chemists. A patent medicine containing a poison, but sold without a poison-label, to render the seller liable to a penalty, but he to have a remedy against the dealer who sold to him, and so on back to the original seller.

4. To provide that only registered chemists or pharmaceutical chemists shall have the right to keep open shop for the sale of poisons or the dispensing of medical prescriptions, allowing, however, the medical, veterinary, and wholesale exemptions now in force, as well as those referring to executors.

5. To require any person keeping an open shop to inform the Registrar on inquiry the name of the proprietor of the business.

6. To compel branch shops to be managed by registered men.

7. Pharmaceutical Society to keep any penalties obtained.

8. Pharmaceutical Society to have power to divide, or otherwise modify, the arrangements for examination. (In order to provide for the curriculum.)

9. No chemist to take an apprentice until apprentice shall have passed the Preliminary examination.

10. The nation and not the Society to pay registrars of deaths for certificates of death of chemists.

11. The Minor examination to confer the title of pharmaceutical chemist, and to allow persons who pass that examination to become "members of the Pharmaceutical Society," instead of "associates" as at present.

12. To end the time in which persons may obtain registration on the ground that they were in business before 1868.

Provincial pharmaceutical associations generally manifested commendable loyalty in accepting the proposals *en bloc*, believing that most likely the best had been done that could be done. At the same time there was a very strong undercurrent of discontent, especially in regard to the proposal to create a schedule of "poisonous" articles, and thus perpetuate the sale of such articles by unqualified persons. It was considered that if the Pharmaceutical Council recommended, and Parliament enacted, that carbolic acid, for example—a chemical to which a large number of accidental deaths are traceable—might be sold by any dealer, there was no logic in maintaining restrictions on the sale of many other drugs not nearly so dangerous. Messrs. Schacht and Woolley had energetically opposed this proposal in the Council, the Executive Committee of the Chemists' Trade Association have declared against it, and a widespread

belief exists that it was a most unwise proposal. We obtained the opinions of seventy-four coroners of England and Wales, of whom only three were in favour of the proposed clause. Of the rest the large majority expressed themselves decidedly in favour of the view that chemists only ought to be allowed to sell such dangerous articles as carbolic acid. We published a summary of their remarks in our May number. Another section to which strong exception was taken was that which provided that the seller of a patent medicine should be responsible for selling a patent medicine containing poison not duly labelled. It was urged by Mr. Sandford, and by many others, that it was quite easy always to prosecute the maker when a patent was found to infringe the law, and with seeming plausibility it was shown that it would be unjust to fine the mere retailer of such an article. On the other side it was argued, and, it seems to us, cannot be gainsaid, that there would be no possibility of proving the liability of any maker, from the mere fact of a label bearing his name and address appearing on the packet; but at the annual meeting of the Pharmaceutical Society Mr. Sandford established his idea by a slight majority as the deliberate opinion of the Society in opposition to the Council. In the early days of the Parliamentary session Mr. Murdella informed the House of Commons that it was the intention of the Government to introduce a Bill for the further regulation of the sale of poisons, and it was supposed from that declaration that the Privy Council had partially or wholly adopted the Bill submitted to them; this, however, they have not done, and the latest official statement in respect to it is that the Government still have the subject under consideration.

Until lately it was thought that the Pharmaceutical Council had made bold demands in the claims put forward in their Bill. There were, of course, stray correspondents who advocated from time to time some sweeping law which should clear away all, or most of, the ugly competition which was sapping the vitals of the trade. This "irreconcilable" section met with notable and unexpected support from Professor Attfield, who, as President of the British Pharmaceutical Conference in September last, shaped a definite claim for the legislative protection of pharmacists on the express ground that under the present pressure of outside competition legitimate pharmacists would not long be able to continue their commercial existence in anything like sufficient numbers to meet the needs of the public. Professor Attfield's claim was greeted very warmly and hopefully by many pharmacists, and gained more or less support in a number of public journals.

In connection with legislation should be mentioned the vigorous and almost successful attempt, organised by the Pharmaceutical Council, to obtain the insertion of a clause in the Medical Acts Amendment Bill, which would give pharmacists a legal right to take part in the preparation of the national Pharmacopœia. The Bill was crowded out of the last Parliamentary session, but it is nearly certain to be re-introduced next year, and its promoters will have learned that they have to reckon with the pharmaceutical body, and must decide whether to conciliate or oppose them in this minor detail of their measure.

In the Diary lately published by us we have printed a very full account of the year's legislation, which shows that very important changes have been made, especially in the laws regulating bankrupt estates and patents. There is good reason to hope that these new Acts will prove of great benefit to the commercial community.

The publication of new Pharmacopœias for Germany and

the United States has given rise to a great amount of criticism. Both works indicate that pharmacy is a progressive art, for both give evidence of considerable improvement in the decade which elapsed between the publication of their predecessors and of themselves. The German Pharmacopœia is marked by a greater condensation, and by the elimination of a great many preparations, some of which can hardly be said to have died a natural death. Unaccountable among the additions is that of *condurango*, the pretensions of which the rest of the world thought had been exploded long ago. The United States Pharmacopœia is more essentially the product of pharmaceutical workmen, and, if anything, bears marks of too great labour. The introduction of novelties, such as "abstracta" and "triturationes," not previously in actual employment, is more like the work of an enterprising firm than of an official committee, and the adoption of the parts by weight system has given general dissatisfaction. But the new Pharmacopœia has been recognised, on the whole, as a very able work, from which our own compilers cannot fail to obtain many suggestions. In the course of this volume we have given extended notices of both works, and in those notices have been incorporated most of the formulæ and processes which seemed sufficiently novel. We also printed a table of solubilities extracted from both works, showing striking discrepancies. Great Britain, France, Italy, and Belgium are preparing new Pharmacopœias, of which more will no doubt be heard in the course of 1884.

The Pharmaceutical Society continues to prosper financially, though numerically its membership is gradually declining. The last annual report showed a net balance to the good of nearly 1,300*l.*, which brought up the accumulated funds of the Society to over 25,000*l.* There were 1,646 pharmaceutical chemist members of the Society on the 31st of last December, and 777 chemist and druggist members—in all 60 less than a year before. There were, however, 45 more associates, but 9 fewer apprentices. The pharmaceutical chemist members have fallen year by year since 1873, when they numbered 1,848. The Chemists and Druggists' Trade Association finds it difficult in the absence of any exciting question to maintain its position. Its report showed that in the year the expenditure, including nothing abnormal, was some 150*l.* more than the receipts; and the membership, which once exceeded 4,000, had declined to 2,743. The British Pharmaceutical Conference, however, shows an extending roll of membership, and the meeting held at Southport last September was attended more largely than any previous conference. Mr. Michael Carteighe presides over the Pharmaceutical Society for the second year; Mr. John Harrison, of Sunderland, succeeded Mr. Hampson as the President of the Chemists and Druggists' Trade Association; Mr. John Williams follows Professor Atfield as President of the British Pharmaceutical Conference; and Mr. Brunner has been chosen to the presidency of the Pharmaceutical Society of Ireland as successor to Professor Tichborne. That Society too, it should be mentioned, is not in such a flourishing condition as might be desired. The Society of Chemical Industry—with its London, Manchester, Liverpool, and Newcastle sections—has abundantly justified its existence by the production of a valuable and previously-untapped literature, and a chemical section of the London Chamber of Commerce has recently been formed under the chairmanship of Mr. David Howard.

Pharmacy has not figured prominently in the Law Courts during the year. A few prosecutions under the Pharmacy Act have been reported from various parts of the country, but no new feature or new interpretation has been developed.

Public analysts have learned wisdom and prudence; and, except to some extent in the Hampstead case, no complaint of their proceedings can be recorded. We have reported the prosecution of a chemist by the Apothecaries' Society (in August), but in that case the chemist had been carrying on a general medical practice with the support of a number of qualified men, and the dispute was, indeed, one among the apothecaries' own household rather than a test of the rights of chemists and druggists.

Lately we were enabled to publish, by the courtesy of the Board of Inland Revenue, a series of figures concerning the patent-medicine trade during the past twenty years, which showed that last year there were 19,404 patent-medicine dealers' licences issued, while twenty years ago the number of vendors was 10,109. The number of patent-medicine stamps issued had progressed during the same period from 6,661,657 to 18,457,990.

Commercially the year does not seem to have been unsatisfactory, at least to the wholesale and manufacturing section. Recently the chemical manufacturers in the North of England have succeeded in so regulating the output of their products as to convert what was on the whole a losing business into a remunerative one, and statements have been made, though not on quite assured authority, as to a three-years' agreement, which, it is alleged, has been arrived at among the quinine-makers, with the object of sustaining prices at a remunerative level. The sudden adoption of a new tariff law in the United States in the spring led to some anticipations of better trade between this country and America, but those hopes do not seem to have been largely realised. The recent election of a thorough free-trader as the Speaker of the United States Congress is an almost certain indication of the triumph of the free-trade party and the probable precursor of a more extensive reduction of the tariff next year. From Australia, New Zealand, and Canada, we have published a number of letters, which show the prosperity of pharmacy in those colonies, and the earnest efforts which the leading pharmacists are making to build up the profession in their several countries on a firm and honourable basis.

An international pharmaceutical exhibition at Vienna attracted some attention, but it was worked on such an economical plan that foreign exhibitors were not present to any great extent. Of other exhibitions, the one lately opened at Calcutta seems likely to be of the chief importance to trade. A French Parliamentary Commission has issued a lengthy report, with suggestions for legislation, which it is expected will take shape in the course of next year. We gave an account of the proposals in July. The existing French pharmaceutical laws have been in force for nearly a century, and are generally regarded as incomplete and out of harmony with the present age. The Commission regard a state of absolute liberty as the ideal condition for society, but they think society is not yet sufficiently advanced in scientific knowledge to allow of the application of perfect free trade to the dealing in medicines and poisons.

The obituary record is one that never fails. Prominent among those who have been removed from us during the year we recall the names of John Eliot Howard, the eminent quinologist, to whom the second Hanbury Gold Medal was awarded a few weeks previously; J. H. Atherton, a former member of the Pharmaceutical Council; Benjamin Humpage, who was well known both as a favourite speaker and writer in pharmaceutical circles; and, in the wholesale trade, R. H. Millard, and, lately, William Squire, of the firm of Heaton, Squire & Francis.

LONDON MILK.

IN a letter to the *Times* (November 23) Mr. G. W. Wigner, President of the Society of Public Analysts, gives some startling details respecting the milk-supply of the metropolis. He first quotes the statement, in this year's report of the Local Government Board, that 24½ per cent. of the milk sold to inspectors in London during 1882 was adulterated, and the remark added to the same report that "in a good many individual districts this proportion, formidably large as it is, is far surpassed." Mr. Wigner thinks that the official report was on the side of leniency towards the dealers, for he speaks of it as "a well-known fact" that milks watered less than 10 per cent. almost always escape the official inspector. The writer then gives the result of his own experience. In October last he obtained fifty samples of milk from the churns which come to London daily from the supply-farms. The farmers had no idea of his intention, but among these fifty he found no single adulterated or skimmed specimen, and the general average he found 7 per cent. above the limit to which public analysts generally work. That result is most honourable to the dairy farmers, and deserves record. But in the same month he bought 300 samples of milk from the retail dealers in all districts of London. Of these he only found 97 samples which passed the limit, while 203 were below it and would be condemned by any public analyst as watered or skimmed or both. The proportion of water added is estimated at from 3 to 60 per cent. Working out a calculation on the basis of these results, Mr. Wigner shows that the London public pays about 266,000*l.* per annum for water sold as milk, and loses at least another 90,000*l.* for cream which has been fraudulently abstracted. Mr. Wigner's argument from these facts is that a standard limit should be fixed, so that we might get at least uniformity in quality, and pay no more than a fair price. But it should be remembered that the establishment of a standard invites dealers to reduce down to that limit. The best process in the public interest seems to be to separate the black sheep among the dealers and give the public better means than they now possess of ascertaining who are reliable milk-purveyors.

PRACTICAL CHEMICAL WORK.

THE Chemical Section of the London Chamber of Commerce has as its earliest business, initiated by Mr. T. Farmer Hall, of the Manure Manufacturers' Association, and Mr. Thomas Tyrer, of the firm of Messrs. May & Baker, Battersa, boldly attacked the difficult question of "Uniformity in Methods and Bases of Analysis." We wish the effort success, for it is inconceivable that in these days of exact science incorrect methods of analysis should be retained in the face of "light and truth," simply because they are ancient or upheld by professional bigotry. We learn from the November Journal of the Society of Chemical Industry that the Liverpool section of that society has discussed the same question in its international relations, thus following up the admirable paper by Dr. Messel, before the London section in 1882. The council of that society has instructed the committees of the various sections to discuss the general question at an early date, and the London section, with characteristic promptitude, proposes to make its first meeting on January 7, 1884, practically a conference on this question. The opportunity is one which it is to be hoped will be utilised by the leaders of the Chemical Society, the Institute, the Pharmaceutical Society, the Public Analysts and Trade Associations, most of whom are doubtless members of the Society of Chemical Industry. We are further informed that the chemical section of the

London Chamber of Commerce will at its next meeting, on the motion of Mr. Umney (Wright, Layman, & Umney), discuss the steps to be taken to modify the present prohibitory rates and restrictions of the railway companies, on the carriage of acids and such goods "in small quantities." Mr. Thos. Tyrer has also notified his intention to raise the general question of railway rates on chemicals, particularly with regard to the unduly favourable rates given to goods exported and imported, which amount in many instances to positively prohibitory charges against buyers of home manufactures.

NO FOREIGN QUININE IN THE PARIS HOSPITALS.

CONSEQUENT probably on the outcry which followed the discovery of the falsification of the quinine supplied to the Paris hospitals last year, the "Assistance Publique," the body which provides the requirements of all the hospitals, has specified in the offered contracts for next year that the contractor must be a Frenchman, and that the products furnished must have been manufactured in French factories. The *Repertoire de Pharmacie* says, "We can only applaud this action, which is as intelligent as it is patriotic." Patriotic it may be; a good many stupid things are done in the name of patriotism. But intelligent such a course certainly is not. The gentleman who was found guilty of having falsified the quinine last year was a Frenchman. If any alteration of the conditions was desirable, it would seem to be logical to give the contract to anybody but a Frenchman. And because he mixed some French cinchonidine with some foreign quinine, of recognised purity, it is thought reasonable to exclude from competition all foreign manufacturers. Victor Hugo will hardly live to see his grand idea of a republic of Europe realised unless he can quickly put some rather broader ideas into the minds of his own countrymen.

THE BENEVOLENT FUND.

WE commented last June on the statement made by the President of the Pharmaceutical Society in referring to the Benevolent Fund that "the great majority of applications for relief were from registered chemists and druggists, who had never been connected with the society at all." We then quoted from the financial statement of the preceding year, which showed that the grants made from the Benevolent Fund to persons who had been connected with the society or to their relations, amounted to 285*l.*, while those made to registered chemists and druggists, or to their relations, amounted to 151*l.* It is worth while recalling this circumstance, especially as no retraction of the statement has been made. On the voting papers for the election of six annuitants which are now being sent in, there are the names of ten approved candidates. Of these eight have been members of the society or are widows of members, while two are widows of registered chemists and druggists. One of each group has died since the voting-papers were printed, leaving the proportion seven to one. Now we fully believe that subscribers to the Benevolent Fund, or at least the great majority of them, desire that their contributions shall be used for the succour of distressed members of the trade, and not of the society exclusively or especially. We make the comment with extreme reluctance, but it does seem that an altogether undue preference is shown to the society applicants. By undue preference we mean a preference of which the subscribers generally would not approve. We quite believe Mr. Carteighe's statement that "the great majority of applications are from chemists and druggist

who have never been connected with the society at all." It is only reasonable that such should be the case. First, there are twice as many outsiders as insiders, and secondly, the former class includes a larger proportion of poorer men. Is it then the will of the subscribers that the proportion of relief afforded by the Benevolent Fund should be as eight is to two, or even as 285 is to 151, while according to the only authoritative information available, the section which receives the lesser portion is that which seems to need help the most?

FOREIGN COMPETITION.

IN the letter from our Melbourne correspondent, published in October last, the statement occurred that "the Pharmaceutical Society are making preparations for their new building, the whole of the apparatus for the laboratories, lecture-hall, &c., having been ordered from America, and the glass-ware, &c., from Germany." In the letter from our Montreal correspondent, published in this number, mention is made of the growing favour of German chemicals in Canada. These facts are worth noting. The statistics given in the DIARY, and published monthly by the Board of Trade, show that the estimated value of the exports of British manufactured chemicals has been diminishing almost regularly for the past three or four years, and it is, we are assured, becoming more and more common for English chemists to sell as their own products articles which they have bought from abroad. In connection with the subject of foreign competition it is impossible to pass over without mention the important news from the United States in the early part of this month. The unexpected election of a thorough free trader as the Speaker of the House of Representatives indicates a more rapid conversion of the nation to free trade principles than was supposed to be the case. In some quarters a further and a much more extensive reduction of the United States tariff is confidently anticipated in the forthcoming session; but at any rate, with the rapid growth in population and influence of the Western States, who want outlets for their products, and are not cramped by having manufacturing interests to defend and protect, the defeat of the present policy is before very long inevitable. When that event comes it will for a time give a fillip to British trade with the States, but genuine free traders are bound to believe that it will ultimately make of America a competitor in all branches of industry such as England has never before had to meet.

IN the new School of Medicine now being erected at Paris it is intended to provide unusual library facilities. Indexes of all the works in the library, representing about 60,000 volumes, are being prepared—one an alphabetical list of authors and the other an alphabetical list of titles. It is also proposed to keep a register of all legally-recognised practitioners of medicine throughout the world. A preliminary investigation has shown that such a list would comprise about 193,000 names, namely, 65,000 in the United States, 26,000 in France, 32,000 in Germany and Austria, 35,000 in Great Britain and Colonies, 10,000 in Italy, 5,000 in Spain, &c.

THE programme of the International Health Exhibition has been issued during the past month, and information concerning it may be obtained from the Secretary, International Health Exhibition, South Kensington, S.W. It is intended to illustrate both hygiene and education in this exhibition. All kinds of food, including beverages, cookery, invalids' and infants' foods and illustrations of adulterations, dress, and arrangements for the dwelling, the school, and the workshop, are classified under the first heading, while all kinds of educational apparatus are included in the second division. No charge will be made for space, but exhibitors will have to pay all expenses of transit, &c., and the Council will reserve the right of refusing any proposed exhibit.

THE suggestion made by Dr. Symes that the Pharmaceutical Society should set apart a portion of its museum for the reception of chemical and pharmaceutical apparatus had a plausible look about it, but Mr. Squire pointed to the danger involved in its adoption by remarking that if they admitted the apparatus or machinery of one maker they could not refuse that of another, and the same speaker remarked that the apparatus for purposes of filtration alone would be sufficient to swamp their whole space. The difficulties of treating manufacturers fairly, and at the same time of getting together an interesting collection of apparatus which would hamper a scientific body, would not present themselves to a private firm; and it does seem as if it would be a promising enterprise for some of our large firms to devote a space for the exhibition of pharmaceutical apparatus of all makers carrying out the scheme on a commercial basis.

* *

THE paper on mineral waters read before the Society of Arts by Mr. Bruce Warren, of which we give a report in this number, was regarded by most of the craft present as a pretty large advertisement for Messrs. Hayward Tyler & Co. Dr. Richardson said it was "a model paper," and Dr. Richardson is an authority on pretty nearly everything. The doctor, perhaps unaware of the kind of audience in front of him, urged his hearers to lay aside modesty and offer such remarks as might occur to them. The invitation was not unheeded, as may be seen from the report. Mr. Foster, whose machinery occupied one side of the platform, with Messrs. Hayward Tyler & Co.'s on the other, won hearty applause for the spirited speech in which he asserted and proved that the area of investigation into soda-water machinery was not so limited as the lecturer had made it appear.

* *

As already announced, the Fisheries Exhibition of 1883 is to be succeeded at Kensington by the International Health Exhibition of 1884, while the Crystal Palace Company, whose directors must have regarded rather enviously the success of their not very attractive but well situated rival, are bidding for a general industrial exhibition for next summer. On the surface there is no limit which can well be fixed to the admission of objects to be sent in for a health exhibition, and naturally the Council must draw the line somewhere. It is a curious fact, however, that they have, we understand, drawn the line at medicines. Drinks, dress, and drains, it seems, are to offer the chief charms for the West-end idlers of next summer, and it must be regarded as singular that while beetle poisons, bustles, high-heeled boots, biscuits, and New Zealand mutton are all eligible, the great benefits conferred on the community by modern pharmacy, or as it might be put, the risks to health of modern medicine, are to be contemptuously ignored.

* *

WE are indebted to Mr. Lamacraft, of Putney, for an account of an accident which occurred in his shop last month, the account of which will probably be useful to other chemists. The publication of such experiences is a thoughtful act on the part of those to whom they occur. In Mr. Lamacraft's pharmacy a row of fully-charged soda-water syphons had been placed on the top of the desk near the window, and in close proximity to these was the gas-jet behind the show-bottles, which, unperceived, was gradually heating the contents of one of the syphons. In the course of the evening the inevitable result took place—the bottle exploded with a loud report, which was heard a considerable distance. The metal top of the syphon ploughed its way clean through one of the 10-gallon carboys, glanced against the plate glass, and finally buried itself in the corner of the window. Mr. Lamacraft, who was behind the counter at the time, had a narrow escape from one of the fragments, which shot over his head and shattered a quart of lavender-water on the top shelf. The rush of water from the carboy was like a small cataract, and deluged a lady customer.

* *

A NEW departure is about to be made in the education of medical students by the formation of a preparatory school of medicine and a school of natural science in connection with the West London Hospital and the Science Department of the South Kensington Museum. The instruction proposed to

be given will be mainly in natural science, up to the standard of the preliminary scientific (M.B.) examination of the London University; but it will also, by lectures on elementary practical medicine, surgery and pathology, elementary physiology, histology and osteology, give intending medical students such an insight into the real nature of medical work that they may, without loss of time or money, be able to judge whether or not they have chosen the right profession. The idea, it is said, was suggested first by Mr. C. B. Keetley, F.R.C.S., and was assisted by a recent speech by Professor Huxley on State Medicine. It seems to be admirably adapted to produce a class of semi-qualified medical men, and will excellently suit chemists and druggists who wish to make a specialty of counter practice.

* *

At the Central Criminal Court on Tuesday last one of the shopwalkers of the Army and Navy Stores was charged with conspiring with other assistants to defraud his employers. It was alleged that certain money taken from customers had been appropriated. Mr. Poland, for the prosecution, had made his opening statement when before any evidence had been offered one of the jurymen, addressing the Recorder, said that he and one other jurymen had come to the conclusion that the storekeepers and their assistants were a lot of blacklegs altogether. The Recorder, of course, rebuked this unjudicial expression of opinion, but the jurymen said that was his conclusion, and his supporter, who was the foreman, said: "These military and civil people cheat honest tradesmen." Mr. Poland naturally declined to proceed with such biased jurymen to try the case, and eventually the two "honest tradesmen" were discharged. As those "military and civil people" were not on their trial, it was obviously out of place to give a verdict against them; but there it stands nevertheless, as the unshakeable conclusion of the one-sixth portion of that triumph of the British Constitution, twelve men in a box.

* *

THE following programme has been prepared by the London section of the Society of Chemical Industry for next year:—January 7, Conference on the desirability and practicability of establishing an Uniform System and Bases of Analysis, and of an International Agreement thereon; Feb. 4, Mr. S. H. Johnson, "On the Filtration of Potable Waters;" Mr. J. H. Porter, "Notes on the Porter-Clark Process;" March 3, Dr. C. R. A. Wright, "On the Manufacture of Cuprammonium and Zincammonium, and their technical adaptation;" Mr. C. C. Hutchinson, "On the Disposal of Sewage Sludge;" Mr. W. L. Carpenter, "Further Notes on the Solidification of Liquid Oils;" April 7, Mr. W. S. Squire, "On the processes concerned in the Conversion of Starch into Alcohol and their relation to Brewing and Distilling;" May 5, Dr. Percy Frankland, "On the Composition and Illuminating Power of Coal Gas;" Mr. W. J. Dibdin, "On the Examination of the Illuminating Power of Gas Burners, especially those of large size;" June 2, Mr. J. M. Thompson, "Hints on Photography for those engaged in Industrial Pursuits;" Election of Local Section Committee; July, Annual General Meeting at Newcastle-on-Tyne.

THE TEMPERANCE EXPERIMENT.—The offer made to the Manchester Infirmary (which we mentioned last month) of 1,000*l.* to carry on an experiment of treating patients without the employment of alcohol has been rejected by the committee of that institution. The medical staff reported that "the conditions necessary for arriving at a trustworthy conclusion as to the value of alcohol by the proposed scheme cannot possibly be realised, and therefore any conclusion arrived at, whether in favour of or against alcohol, must lead to a disastrous practice, either by an undue extension or curtailment of the use of any drug. Secondly, alcohol in its various forms is given in this hospital as a medicine, and not as an article of diet. As a medicine, it is of great value in the treatment of disease, and at times essential for the saving of life. This being so, they can only consider the course suggested in the letter submitted to them as an experiment which involves the lives of their fellow-creatures and cannot therefore be countenanced."



AND Literary Notes.

Annuaire des Produits Chimiques et de la Drogueries. 9me édition. Septembre, 1883. Paris: Administration 9 Rue des Petits Hotels.

THIS volume is much more than twice the bulk of the seventh edition of the work, which is the latest received by us. The information it contains is very extensive, though, it must be said, far from complete. In the first thousand pages an attempt is made to classify the chemical manufacturers of Europe according to their productions. Of course this is useful, as far as it goes, though the difficulty of distinguishing between makers and dealers is insurmountable. Looking under "quinine" as a test case, we find no English maker named, and not all the German manufacturers. In the second part is given a list of the pharmacians of France and Algeria. The third part is an international and somewhat heterogeneous collection of "druggists"; and in the fourth part a considerable and useful list of importers and exporters in all parts of the world is given, indicating in many cases the class of articles dealt in. It is fair to add that there is evidence that the English section has been supervised by an Englishman. The work is one on which much labour must have been expended; though, as we have hinted, and as must be the case, many imperfections might be easily discovered.

One Thousand Medical Maxims and Surgical Hints. By N. E. Davies, M.R.C.S., &c. London: Chatto & Windas. 1883. 1*s.*

THIS little book consists of 1,000 numbered paragraphs, consisting generally of one sentence only. The author has not always succeeded in making his sentences independent, and, taken by themselves, they are not always weighty or instructive. Thus No. 894 is "Any respectable pastrycook or confectioner can procure ice within twelve hours," and No. 861 is "Laennec, in 1816, invented the stethoscope." But we are bound to say that there are few chemists and hardly any laymen who would not get many valuable hints from it. It is just one of those books that our readers might very well sell with advantage to themselves and their customers.

The Extra Pharmacopœia. By W. Martindale, F.C.S., and W. Wynn Westcott, M.B. Second Edition. London: H. K. Lewis.

WE reviewed the first edition of this work in August last. That a second edition should be wanted so quickly is conclusive proof of its usefulness. The authors have carefully revised their work, have added twenty-three new drugs, forty-one formulæ, numerous references, and a therapeutical index, naming under diseases the usual remedies.

Doctors and Their Patients. By Darwin Gisborne. London: E. W. Allen. 1883.

THIS is a singular book. Its title fairly describes its subject, but it is hardly pleasant or healthy reading. Its author cynically paints the weaknesses of the two classes, but the picture is sordid, and certainly is not a fair representation of the general relations between doctors and their patients. Doctor Honourable, Dr. Tulip, Dr. Diagnosis, and the Rev. Mrs. Shakefeathers are the characters who are sketched in turn. The first is a man who ought to be popular and wealthy, but is not because he is too plain-spoken. Dr. Tulip joyfully seizes the first opportunity to supplant an old family doctor, though he knows he cannot do more for the patient. Dr. Diagnosis, the most elaborate portrait, is a successful moneygrubber, whose daily life is meanness, brutality, and sycophancy. The Rev. Mrs. Shakefeathers is the Lady Bountiful of her husband's parish, but mistakes a case of scarlet-fever for measles and gets into hot water. "Midwives and Amateur Cadgers" are the

subjects of the last section. The latter are a class who ingratiate themselves in the sick-room that they may usurp the headship of the house on the patient's death, and get much plunder in commissions and "portable property." We confess we never met with a specimen.

Elementary Practical Chemistry and Laboratory Practice. Part I. By J. Spencer, B.Sc., Lond. London: J. Boulton & Co. 1883.

THIS little work is designed for students preparing for the Science and Art Department Examinations in the first stage of inorganic chemistry. The author's twelve years' experience has taught him that the only way to learn chemistry is to perform experiments, and he directs that the teacher should first perform them before the class, and then allow each student to repeat them. On this system it matters little what book is employed. The present one does not give manipulative details, and would be of little use without the explanations of a teacher. At the end there is a useful series of 300 exercises in chemical calculations, with the answers, and 250 questions set at various examinations.

The Vegetable Materia Medica of Western India. By W. Dymock. Part IV. Bombay and London: Trübner.

THE learned author at first expected to complete his work with this part, but now announces that the concluding part will appear in January, and that the manuscript is now in the hands of the printers. We are glad to see that, as we suggested in our first notice, it will contain a complete index to all the scientific and vernacular names. Part IV. carries the pagination to 632, and the subject matter to the beginning of the Monocotyledons, ginger, cassumunar, and turmeric receiving notice. The very complete style of treatment is thoroughly maintained, and the book promises to be a valuable work of reference. Again and again the reader is met by the notice that the chemical history of the plant has been not at all, or only imperfectly, investigated, and the organic chemist will be long before he has to weep for fresh worlds to conquer.

The present part contains much that deserves quotation. We have only space for a few sentences. The Sanskrit names for Indian hemp are some of them graphic, and illustrate the experiences of its effects published in our last number. They are *vijaya*, *vijaya*, and *jaya*, which mean "promoters of success"; *vrijjatta*, "the strong-leaved," *chapola*, "the cause of a reeling gait," *ununda*, "the laughter-moving," and *hursini*, "the exciter of sexual desire."

Under *Hypocymus albus* a note by Baron Hammer-Purgstall to Trebutien's "Contes inédits des mille et une nuits" is quoted, which connects the Homeric Nepenthe with that plant. "Bendj," the plural of which in Coptic is "nibendj," is without doubt the same plant as the "nepenthe," which has hitherto so much perplexed the commentators of Homer. Helen evidently brought the nepenthe from Egypt, and bendj is there still reputed to possess all the wonderful qualities which Homer attributes to it.

The fruit of the *Withania coagulans*, sold in the Bombay shops, seems worthy of the attention of some enterprising chemist. The fruit is locally known as *kahnaj*, and is principally used as a coagulant of milk. The plant is a small shrub common in Sind and North-West India, where it is known as *Panir-ja-fota* and *Panir band* ("the cheese-maker"), and is commonly used to coagulate milk instead of rennet. From experiments made by Sir J. D. Hooker, at Kew, it has been ascertained that 1 oz. of the fruit and 1 quart of boiling water will make a decoction, one tablespoonful of which will coagulate a gallon of warm milk in about half an hour. The fruit contains no poisonous principle, has a fruity odour, and hardly any taste. Experiments were made on the estate of Sir James Ferguson, Governor of Bombay; "4 oz. of the fruit were allowed to simmer for twelve hours in 1½ pint of water, and half the liquid was then added to 55 gallons of milk, which curdled in an hour and a half, affording a firm curd, free from taste or smell; of this a cheese was made which proved to be excellent." In the first of these experiments an infusion of 5½ grains of the fruit, and in the second a decoction of 16 grains sufficed to curdle a gallon of milk. The method of preparation in the latter case was so extremely unscientific that the difference is accounted for. A preparation of

this fruit might well be introduced as a substitute for rennet, and even if it were not taken up by cheese farmers, it would have a considerable sale for culinary purposes. It would be easy to emphasise the superiority of a vegetable product to the repulsive calves' stomachs.

There are some curious notes under "Rheum sp." Local name, *Lakri-rewand-chini*. "This is a very inferior kind of rhubarb, in long stick-like pieces, which arrives at Bombay from the Eastern ports. It comes from China, and has hardly any aroma, a bitterish taste, and but slight purgative action. When fresh it is covered with a yellow dust like ordinary rhubarb. The natives use it as a tonic and stomachic. None of the commercial rhubarb known as East Indian is imported into Bombay unless specially ordered from China but it often passes through the port on board the Peninsular and Oriental steamers. Bombay druggists, native and European, obtain their rhubarb from London. On account of its low price the natives always import English rhubarb. The Lakri-rewand-chini fetches 3.12r. per maund of 37½ lbs. It is known in European commerce as Canton stick rhubarb."

A Manual of Chemistry. By Henry Watts, B.A., F.R.S. Vol. I. "Physical and Inorganic Chemistry." London J. & A. Churchill. 1883.

ALTHOUGH this volume does not appear under the well-known title "Fownes' Chemistry," it is in reality the thirteenth edition of that work, the twelfth edition of which appeared upwards of six years ago. A work that is so well known does not demand a lengthened notice. This, however, is not merely a reprint of the former edition brought up to date, by such additions or other alterations as the progress of the science demands—it is almost a new work as far as arrangement is concerned. The first alteration that we notice is the addition to the introductory chapter of the article on the general laws of chemical combination chemical nomenclature and notation, which was formerly rather out of place under the head of "Oxygen." Similarly, the article on the manipulation of gases, which was also part of the chapter on oxygen in earlier editions, has been transferred to a more appropriate place in that portion of the physical part dealing with the physical properties of gases. These alterations are decided improvements, as they present the facts to the student in a more natural order. Part I. on physics is an important feature in this work, and it shows signs of having been carefully revised and modernised. Sprengel's very elegant apparatus for the determination of the specific gravity of liquids is described, and fractional distillation, the determination of melting points, and the determination of vapour density by Meyer's method are dealt with in their proper places. There is also a description of Holtz's electrical machine. The chief alteration in the part of the work dealing with the non-metallic elements is the order in which these elements are taken; the scheme now adopted is more in accordance with modern notions of classification, and at the same time it is convenient for the purpose of study. In the part on the metals there is a marked departure from the arrangement followed in earlier editions, in which the metals were taken in the order of quantivalence. The author states that, "It is found advisable in describing the metals to classify them according to their general arrangement in physical and chemical properties rather than according to their quantivalence." Both arrangements have their advantages, and it would be difficult to say which is to be preferred in a work of this sort. A system of classification following the periodic law as closely as possible would, perhaps, on the whole be the best to adopt. In this part of the work the recently-discovered elements—Ytterbium, Scandium, and Decipum are referred to. The name of the author is a good guarantee for the excellence of the matter, and for the admirable manner in which it is condensed without any sacrifice of accuracy. We notice only one misprint, the melting-point of solid bromine is given as 7.3° on page 146, and in another part of the volume it is stated that bromine solidifies at 24.5°. The work on the whole is well calculated to sustain the high position secured by "Fownes' Chemistry," and, indeed, it may be regarded as about the most complete of the smaller text-books of physical and inorganic chemistry in the English language.

Scientific Notes :

On Chemistry, Pharmacy, Botany, Materia Medica, &c., Original, Selected, and Translated.

THE ACTION OF IODINE ON METHYLATED ALCOHOL.

WE have previously published notices of the effect of iodine dissolved in methylated alcohol. Such a solution develops pungent odours affecting the eyes, and is actually dangerous to use for external application in consequence of the severe pain it is likely to cause to tender surfaces. [See especially a report on page 353 of this journal, July, 1883.] In the *Union Pharmaceutique* a note is published by M. L. Pommier on this subject. He says that some years ago, having prepared some tincture of iodine, he found such odours developed in a few hours. He prepared a second, third, and fourth solution, using iodine from different houses in each case. Always the same result followed. Then he changed his alcohol, and obtained a tincture which kept perfectly. He had no doubt that the alcohol which he had been using, and which had been sold to him as pure, was a "cleaned" article. Probably, therefore, iodine might serve as a delicate test for the purity of alcohol. It will be interesting to discover what are the exact conditions of this combination, and also what is its nature.

NEPENTHE.

ONE of our contributors has been analysing this well-known preparation. He received 1 fl. oz. Ten grammes yielded 0.07 gramme of morphia having a mere shade of cream colour. The mother liquor, or, rather, the filtrate from the precipitated morphia, yielded only a faint trace of substance to chloroform. This gave a faint violet coloration with H_2SO_4 and sodium arsenite, which was assumed to be due to codeia. BaCl_2 gave a fairly copious precipitate, most of which was soluble in HNO_3 , while a mere opalescence was produced by AgNO_3 , and in a precipitate with CaCl_2 , FeCl_3 , does not give the meconic acid reaction. Our contributor at first concluded from his investigations that the following formula was a close representation of nepenthe:—

Morphia tart.	gr. iij.
" sulph.	gr. j.
Sherry	3j.

But further consideration suggested that probably sulphate of morphia alone was employed, especially as there is often found a deposit in the preparation, which is probably due to a reaction between the morphia sulphate and calcium tartrate contained in the sherry, calcium sulphate being precipitated.

VOLUMETRIC ESTIMATION OF LEAD ACETATES.

IN the course of a paper on "Volumetric Analysis," read by Mr. Peter MacEwan at a meeting of the Edinburgh Chemists' Assistants' Association, the tediousness of the pharmacopoeial process for the above was referred to in the following words:—

"There is a special difficulty with lead acetates, due to the fact that they react with the oxalic acid to form insoluble lead oxalate and acetic acid; consequently litmus and the other saturation indicators do not indicate the final reaction. The only indication is cessation of precipitation, but the oxalate subsides very slowly in the cold, and it is so bulky that one is apt to run in too much of the oxalic acid solution. By reversing the process and employing the heat of a water-bath to aggregate the precipitate, I find that the process can be conducted more expeditiously. The following are details:—

Plumbi Acetas.—The burette is filled with a 10-per-cent. aqueous solution of the salt (10 grammes in 100 c.c.), containing a little acetic acid to keep it clear; 20 c.c. of oxalic acid solution, and about 2 oz. of warm water are put into a flask, then 38 c.c. of the lead solution are run in and the flask placed on a water-bath. This quantity of lead solution contains 3.8 grammes of the salt, which is the amount allowed by the British Pharmacopoeia to combine with 20 c.c. of acid solution; if, therefore, the salt contain impurity, we shall require to pour more lead solution into the flask. It will be found that the heat of the water-bath causes the

precipitate to subside more quickly than that of the naked flame; as soon as there is a fair amount of clear superstratum the flask is removed and a few drops of lead solution added; if a precipitate form proceed cautiously, adding the solution, heating between each addition, until the last drop ceases to cause a precipitate. Note the number of c.c. used and calculate the percentage of real acetate (B.P.) in the sample from the following formula (x =number of c.c. used):—

$$\frac{38 \times 100}{x}$$

Liq. Plumbi Subacetatis.—Twenty grammes of this solution should be made up to 100 c.c. with a little acetic acid and distilled water, the burette being filled with the solution. Ten c.c. oxalic acid solution and 2 oz. of warm water are put into the flask, and about 10 c.c. of the lead solution added; then place on the water-bath after agitating the contents thoroughly. After subsidence continue the addition of the lead solution, and proceed *secundum artem* until the final reaction is attained.

Calculation.

$$\begin{aligned} 10 \text{ c.c. oxalic acid solution} &= 1.37 \text{ gr. Pb}_2\text{O} (\text{C}_2\text{H}_3\text{O}_2)_2 \\ V &= \text{number of c.c. diluted lead solution used, then} \\ \frac{1.37 \times 100 \times 5}{V} &= \text{p.c. of Pb}_2\text{O} (\text{C}_2\text{H}_3\text{O}_2)_2 \text{ in sample.} \end{aligned}$$

Working by the ordinary method, namely, by adding the acid to the lead solution, heating of the mixture does not appear to be advisable, because the precipitated normal lead oxalate reacts partially with the basic acetate to form basic lead oxalate, thus giving results which are slightly low. The following are percentages which I have obtained by both methods:—

A sample of liq. plumbi subacetatis estimated,

I. By ordinary process. Ten grammes required 19 c.c. oxalic acid solution (mean of three titrations) = 26.03 per cent. $\text{Pb}_2\text{O} (\text{C}_2\text{H}_3\text{O}_2)_2$.

II. By reversed method. Ten c.c. oxalic solution required 25 c.c. of 20-per-cent. solution (mean of three) = 27.4 per cent. $\text{Pb}_2\text{O} (\text{C}_2\text{H}_3\text{O}_2)_2$.

III. By precipitation as chromate found 27.2 per cent.

In I. and II. the mixtures were filtered after titration, both remained perfectly clear after cooling; I. gave a very slight indication of lead with potassic chromate, and II. less so.

Another point worthy of observation is that in the ordinary method (using heat) the superstratum is charged with minute crystals, while in the reversed method it is perfectly clear until the final reaction is reached, after which (if more lead be added) it becomes similar to that of the ordinary method. This fact would seem to strengthen the supposition that basic oxalate is formed in presence of basic acetate.

PREPARATION OF PURE CHLOROPHYLL.*

A. TSCHIRCH states that until now absolutely pure chlorophyll has never yet been obtained. The assumption has always been that chlorophyll is a comparatively stable substance, whereas Tschirch finds it to be readily decomposed even by carbonic acid, with formation of chlorophyllane. He considers that only that substance which gives exactly the same absorption spectrum as is yielded by the living leaf can be considered pure chlorophyll. He has obtained such a substance by the reduction of chlorophyllane by powdered zinc over the water-bath. In alcoholic solution this substance has a beautiful emerald-green colour, and yields the following absorption spectrum:—

Band	I.	II.	III.	IV.	End Absorp- tion
Thin layer .. $\lambda = 68$ to 63	62 to 59.5	58.3 to 55.7	54.0 to 52.5	50	
Thick layer .. $\lambda =$	68.5	55.5	53.5 to 52.0	51	

Absorption Spectrum of Living Leaves.

Band	I.	II.	III.	IV.	End Absorp- tion
Two leaves .. $\lambda = 70.65$	63 to 61	60.57	55 to 54	52	
Three leaves .. $\lambda =$	70.5	57	55 to 54	52	

Pure chlorophyll thus prepared is a dark green liquid which has as yet resisted all attempts to crystallise it. It is

* *Berichte der deutschen chemischen Gesellschaft*, November 23, 1883.

easily soluble in alcohol, ether, and in fatty and essential oils, and very readily soluble in benzine; it is difficultly soluble in melted paraffin, and insoluble in water. It is converted by dilute acids into yellow chlorophyllane, and by concentrated hydrochloric acid into phyllocyanine. A solution of caustic potash decomposes it into a fluorescent emerald-green substance, soluble in water, and resembling chlorophyll in its external appearance, and into a yellow substance soluble in ether.

The author is continuing his researches on the subject, and reserves further details for a future paper.

PREVENTION OF PITTING IN SMALL-POX.*

For this purpose M. Schwimmer recommends the external employment of ointments containing carbolic acid or thymol.

I.										Parts
Carbolic acid ..	..	..	..	..	..	..	..	..	..	5
Olive oil ..	..	..	..	..	..	..	..	..	..	40
Prepared chalk ..	..	..	..	..	..	..	..	..	..	60
II.										
Carbolic acid ..	..	..	..	..	..	..	..	..	..	5
Olive oil ..	..	..	..	..	..	..	..	..	..	40
Starch ..	..	..	..	..	..	..	..	..	..	40
III.										
Thymol ..	..	..	..	..	..	..	..	..	..	5
Linseed oil ..	..	..	..	..	..	..	..	..	..	40
Prepared chalk ..	..	..	..	..	..	..	..	..	..	60

In experiments carried out by the author on small-pox patients, treating only the face, it was found that the drying action set in from four to eight days earlier than in the parts of the body not operated on. The ointments form a protective covering, prevent the dangerous internal suppuration, and entirely prevent the formation of scars.

PHYSIOLOGICAL ACTION OF POTASSIUM CHLORATE.†

LARGE doses of potassium chlorate are known to be poisonous, and comparatively small doses have proved fatal to children.

Dr. von Mering, of Strasburg, formulates the physiological action of the salt as follows:—

1. The greater part of a given dose of potassium chlorate is evacuated from the organism in an unaltered state.
2. When blood is mixed with potassium chlorate, methæmoglobin is formed, which is accompanied by a reduction of the salt.
3. Alkali retards, while carbonic acid accelerates, the decomposition of the colouring matter of blood.
4. Venous blood is more readily decomposed by potassium chlorate than arterial blood.
5. When taken on an empty stomach, or when from some cause the salt is but insufficiently evacuated from the organism, the effects of potassium chlorate are especially injurious.

INACCURACY OF PHENOLPHTHALEINE AS AN INDICATOR IN TITRATING SOLUTIONS OF AMMONIA.

A CORRESPONDENT of the *Chemisch-Technischer Central-Anzeiger* states that in a number of titrations made to ascertain the percentage of ammonia in ammoniacal solutions, using phenolphthaleine as an indicator, no two were alike; the difference in one and the same solution varying to the extent of 1 c.c. Since other chemical and pharmaceutical papers have brought the same complaints, it would seem that the agent in question must be discarded for titrating solutions of ammonia, though its employment as an indicator still holds good for the estimation of solutions of soda and potash.

DETECTION OF RESIN IN BEESWAX. E. SCHMIDT.

TEN grammes of the wax to be examined are to be put in a flask or porcelain dish, 40 grammes to 50 grammes of crude nitric acid (sp. gr. 1.32) are added thereto, and the mixture

is boiled for one or two minutes; an equal volume of cold water is then added, and lastly ammonia, with shaking or stirring, until the fluid is strongly alkaline and smells of ammonia. It is now poured off from the precipitated wax into a cylindrical vessel. In the case of pure wax the liquid only possesses a yellow colour, but wax which contains resin yields a more or less reddish-brown product, the colour being derived from nitro-compounds formed. From the intensity of the coloration it is impossible to determine the amount of resin present.—*Seifensied Zeit.* and *Jnl. Soc. Chem. Ind.*

[SLIGHT AILMENTS.*

DRYNESS OF MOUTH AND INCIPIENT COLD IN THE HEAD.—Drinking freely of linseed tea flavoured with lemon, or of lemonade, and sucking Wyeth's compressed tablets of nitre, chlorate of potash, or chlorate of potash and sal ammoniac; also inhaling spray containing nitrate or chlorate of potash, 5 to 15 grs. per oz., or carbolic acid, 2 grs. per oz., at the same time keeping the patient warm.

CONSTIPATION.—Exercise, but not too much. No dreary constitutional producing fatigue; quiet walking in the best air you can find, and with the most agreeable surroundings, will be beneficial—nought else. The cold bath, for those who like it and with whom it agrees, but for the majority the tepid bath or dry rubbing, especially of the abdomen. Kneading the colon in the direction of its action, or a wet compress over the abdomen covered with waterproof. Diet should produce a residuum of sufficient bulk to stimulate the bowel—brown bread, Indian corn, or oatmeal porridge.

Coffee acts with some people (malt coffee is excellent); also fruit, especially apples, at breakfast.

Apple rings and French prunes for stewing can be had at the grocer's. Also figs, which can be steeped over-night in water, and so the laxative effect increased.

OF TAKING FLUID.—Some people are constipated from taking too little fluid, some will not drink water either because it is bad or because they dislike it. If so, the various aerated waters give a large choice, but there is nothing cheaper or better than water which has been boiled to destroy all germs, and then taken half a pint at a time once or twice a day, either cold or warm, as preferred. The latter is, no doubt, often to be preferred, and it is soon liked.

OF PURGATIVES IN CONSTIPATION.—The rule is "little and often," say about 5 grains of aloes and myrrh pill every night till the bowels act. Then rest awhile; remember the colon may be loaded though the bowels are regular, and in cases of doubt examine the abdomen. The amount and combination of laxatives must be carefully adapted to each case, so that the dose may be a minimum. Good combinations are rhubarb, with bicarbonate of soda. Aloes and potash as in the compound decoction of aloes, to each dose of which 15 or 20 grains of bicarbonate of potash may with great advantage be added.

The following in pills:—Aloes, quinine and strychnine, or extract of aloes, atropia, and podophyllin; say, ext. aloes 6 to 10 gr.; sol. atropia, 8 m.; tinct. podophyllin (10 gr. to 1 dr.), 6 m.; pulv. Rhei. 10 gr.; ext. gent. q. s., 12 pills. Podophyllin is almost sure to gripe unless it has been dissolved in alcohol, and so divided minutely.

A little comp. colocynth and henbane may be combined with any of these pills; in spite of fashion, two drugs, and sometimes three, are better than one.

Saline Purgatives.—These act on the secreting glands of the digestive system, and also on the kidneys. Two drachms of sulphate of soda or magnesia, or half as much of both, with a drachm of common salt and 10 minims of dilute hydrochloric acid, dissolved in a wineglass of warm water is a medium dose; a few grains of nitre may be added, and acid infusion of roses may be used instead of plain water. Phosphate of soda has the advantage of having little taste. Fashionable patients can have Friedrichshall or Hunyadi Janos water.

* *Pharmaceutische Centralhalle*, November 22, 1883.

† *Klinische Wochenschrift*, through the *Pharmaceutische Zeitung*, November 10, 1883.

* From the *Midland Medical Miscellany*.

RUNNING FROM THE EARS should never be neglected, as it may at any time be the starting point of brain mischief. Iron and cod-liver oil, with warm astringent injections to the ear, are most useful.

INFLAMED TONSILS.—A most painful affection, very often running on to suppuration. You will often earn the thanks of your patient by the relief given by half-drop doses of aconite every hour.

BOILS AND CARBUNCLES.—Belladonna ointment is an excellent application for boils in their early stage, and "shoemakers' wax" in the later. For carbuncles, carbolic oil externally, and one-tenth to a quarter grain of sulphide of calcium internally every three hours.—See *Ringer*.

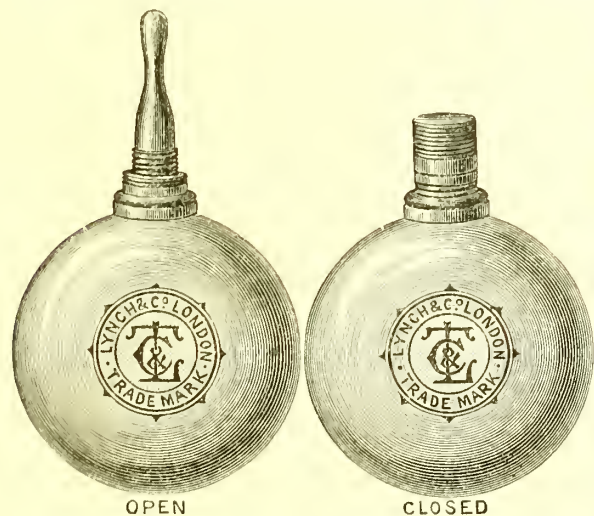


METAL-BOUND PAPER BOXES.

MR. THOMAS BISHOP, of the Deritend Paper-box Works, Birmingham, sends specimens of his patent boxes, intended primarily for parcels-post purposes, but likely to be frequently useful. These boxes are made of very stiff cardboard, and the lid accurately and neatly covers the box proper. The feature of the patent is that a steel binder is fixed to all the corners of both boxes and lids, insuring great strength, though not adding appreciably to the weight. Boxes of this kind can be made in any size. The stock sizes vary from 3 to 10 inches in length, with proportionate width and depth. The prices quoted seem moderate.

LYNCH'S SYRINGE WITH REVERSIBLE MOUNT.

MESSRS. LYNCH & Co. have introduced an indiarubber urethral syringe which has several advantages worth noting. In the first place the mounts are all of vulcanite, which is, perhaps, the material most suitable for the application of chemical injections. The stem is fitted by a screw so that



it may be reversed, and a vulcanite cap is also supplied, which enables the person who has to use the syringe to carry it about with him ready charged, and with no danger of the fluid escaping. This has hitherto been accomplished by syringes fitted in boxwood cases, but the new form is lighter, cheaper, and more compact.

CARBONIC ACID PUMP.

WE have twice previously noticed this important German invention (November 1882, and June 1883). In the first place we mentioned it as an interesting application of liquefied carbonic acid gas, and we stated that it was coming into use in the Berlin restaurants as a means of forcing up to the counter taps the beer from the casks in the cellars; and the second time we noted that a German pharmacist had employed the apparatus for the direct production of aerated waters. At a recent meeting of the London section of the Society of Chemical Industry the invention was exhibited and explained by Mr. A. Zimmermann, whose firm (Messrs. A. & M. Zimmerman, of 27 Mincing Lane), have become the English agents for the patentees.

The machine consists of a wrought iron cylinder holding about 10 litres, and containing liquefied carbonic acid gas. The pressure in the cylinder equals about 36 atmospheres at 32° Fahr., and about 75 atmospheres at 86° Fabr. This pressure may be increased by placing the cylinder in hot water. Indeed it has been proved experimentally that at a temperature of 200° Celsius a pressure of 1,200 atmospheres can be produced. The cylinders are all proved to resist a pressure of 250 atmospheres, so that perfect safety is guaranteed. To more conveniently employ the gas from the liquefied carbonic acid, it is first transferred to a gasometer, and from this pipes are carried as required. The great use to which the invention has been applied in Germany, and for which it is thought it will be useful in this country, is for raising beer. The gas is conveyed by a tube bored through the top of the cask, at a pressure of about 1½ atmospheres. This is quite sufficient to force the beer up another tube to the heights ordinarily required. Obviously the beer is kept in a good condition, and indeed improved, by this contact with carbonic acid gas. Many other applications of the invention are possible, as, for example, for extinguishing fires, for preserving products likely to putrefy if in contact with air, and, as we have already mentioned, for the manufacture of aerated waters. We believe it is contemplated to form a company to set up a plant here and manufacture the machinery as well as liquefy and supply the gas. At present the cost of the gas in Germany as supplied to the restaurants, exclusive of the first cost of the apparatus, is about 18s. per cylinder. This holds about 10 litres, which expand to some 500 times their bulk when allowed to escape.

WYNDHAM'S CLINICAL BATTERY AND INDUCTION COIL. (CLARKE'S PATENT.)

THIS little apparatus, which has been shown to us, deserves mention for its extreme compactness and efficiency. It consists of a battery (chloride of silver) in a brass case, an induction coil, brass handles, with ebonite attachments to hold when it is desired to apply the handles to any part of the body, and an intensifier. All the parts are fitted into a neat wooden box, and this is enclosed in a leather case, the whole measuring 4½ inches by 3 inches by 1 inch. Either a primary or secondary current can be obtained, both being perfectly steady, and by means of the intensifier the force can be modified as required. The battery, we are told, will work for from six to twelve months, and can then be renewed for a moderate price. The retail price of the whole arrangement is one guinea.

SOLIDIFIED CREASOTE.—By the addition of 10 parts of collodion to 15 of creasote (says the *Revue de Thérap.*) a sort of jelly is obtained which is more convenient to apply to decayed teeth than is creasote in its liquid form.

MISCELLANEOUS FORMULÆ.

COD-LIVER OIL EMULSION, WITH HYPOPHOSPHITES.—Stearns, of Detroit, puts up a cod-liver oil emulsion as one of his non-secret medicines, which, he says, mixes with water, milk, or wine in all proportions, is as easily digested as milk, and in which the oil is not saponified. He gives his formula as follows:—Our emulsion contains 50 per cent. oil, 20 per cent. glycerine (which protects and sweetens it), 6 grains of hypophosphite of lime, and 3 grains of hypophosphite of soda to each fluid ounce. The flavouring-oils are winter green and bitter almond, nicely adjusted; the whole emulsified with gum tragacanth.

BLOOD-PURGING SYRUP (HEMOCATHARTIC SYRUP).—Burdock root, yellow-dock root, saponaria root, each, 12½; gualac wood, 25; bitter-sweet stems, 20; senna, 3; boiling water, 500. Steep in water-bath twelve hours, cool, strain, add strained honey and sugar, of each 65 (all parts by weight); form a syrup. Dose, 1 teaspoonful 3 times a day.—Devergie, per *Stearns' New Idea*.

GOLD INK.—*Rundschau* quotes from Rheinfeld in the *Seif. Ztg.* the following process:—Take equal parts of iodide of potassium and acetate of lead; put them on a filter, and pour over them twenty times the quantity of warm distilled water. As the filtrate cools iodide of lead separates in golden scales. This is collected when the filtrate has quite cooled, washed with cold water on a filter, and rubbed up for an ink with a little mucilage. The ink thus made must be shaken every time it is used.

SINCLAIR'S COLD-WATER SOAP.—The *Pharm. Zeitung* gives the following as the method of manufacture of this product according to Borchert's investigation:—Seventy parts of tallow, 30 parts of bleached palm-oil, and 25 parts of resin are boiled together, and then 3 to 5 parts of Venice turpentine are added. After two days about 8 per cent. of silicate of soda is added. According to other analysts the soap contains 1 per cent. of French chalk instead of the silicate of soda.

NEURALGIA-PENCILS.—So-called neuralgia-pencils, "Migräne-Stifte," are now being offered by a number of German pharmacists, especially in Berlin. They are said to consist essentially of a mixture of menthol, thymol, and eucalyptol, fused, and cast in small conic pellets, which are fitted in a suitable handle. The forehead and temples are touched with the pencil. A slight impression of burning is at first produced, which soon gives way to a pleasant cool sensation. Several pharmacists claim priority in this invention. Friedländer exhibited neuralgia-pencils at the late Vienna Exhibition, and a year ago nerve-crystals were offered by Blaser, which were described in the *Pharmaceutische Zeitung* as consisting of a mixture of crystallised Japanese peppermint oil, and camphor.

HIMROD'S ASTHMA CURE.—J. S. Hearn (Pine Bluff, Ark.), supplies the following formula to the *New York Druggists' Circular*. It differs from a formula we have previously published. He says: "I bought the receipt in Denver, Colo., in 1875. It was used extensively there, and said to be the original." It is as follows:

	Ounces
Powdered lobelia	2
" stramonium leaves	2
" nitrate of potash	2
" black tea	2

Mix, and sift well.

INK FOR MARKING PACKAGES.—Shellac, two ounces; borax, two ounces; water, 25 ounces; gum arabic, two ounces; Venetian red or lampblack sufficient to colour. Boil the borax and shellac in the water until they are dissolved, add the gum arabic and withdraw from the fire. When the solution has become cold, complete 25 ounces with water, and add Venetian red enough to bring it to a suitable consistency and colour. This ink must be preserved in a glass or earthenware vessel.

Medical Cleanings.

SUPPOSITORIES IN PILES.—The following formula is recommended in a recent issue of the *Gazette Medicale de Paris*:—

Jodoformi	5j.
Balsam. Peru.	5ij.
Ol. theobroma	5iiss.
Cera. alb.	5iiss.
Magnes. calcin.	5j.

Mix. Divid. in suppos. No. xij.

One of these should be introduced after each evacuation.

OPIMUM SMOKING IN VARIOUS COMPLAINTS.—The *Vienna Med. Blatt.* reports a paper read by Dr. Thudichum, of London, at the recent "Congresse für Innere Medicin," in which he described a form of pipe for opium smoking, and strongly recommended the process as a means of relief in cases of hay fever, the cough of consumption, neuralgia, &c. The pipe he described is of the ordinary opium-pipe construction—namely, a long tube with a terra-cotta head. The opium he prefers in the form of watery extract, as ordered in the Austrian Pharmacopœia. Taking a pearl of this on the point of a needle, it is held in the flame of a lamp until the water is evaporated, then pressed on the aperture at the head of the pipe, and pierced through with the needle. The opium is then held about 1 or 1½ inch above the flame while the patient inhales the vapour passing through it and by the tube. Ordinary cases of cold, with running at the eyes, sneezing, &c., are readily cured by this method. Dr. Thudichum has also found excellent results in relieving the cough of phthisis, the pain of neuralgia, &c. He has not met with any patient who, after its employment as a remedy, wanted to continue it as a practice.

FOR RINGWORM OF THE SCALP Dr. Alder Smith (in the *Lancet*) recommends the application of

Acid. boracic	3iijss.
Eth. sulph.	5ij.
Spt. vini rect. ad	3xij.

Ft. lotio.

If this lotion cure, it does so completely and quickly, viz., in about three months. He has known it cure cases that have resisted treatment for years, but, like other parasiticides, it often fails. If the disease be extensive the scalp should be shaved; if not, all the places must be thoroughly marked out. The patches on the whole scalp should be thoroughly washed every morning with soap and hot water, and all scales and sebaceous matter removed. The hair should be kept closely cut on all patches. No grease must be employed. The lotion should be well rubbed, pressed, and dabbed into all the places for ten or fifteen minutes three times a day.

FERRUGINOUS KOMMISS.—According to Eberman's experience (*Medic. Vestnik, and Medical Surgical Report*), anæmic patients, especially those with tendency to hemorrhage, rapidly recover their health from the use of ferruginous koumiss. This is prepared by daily adding ordinary doses of lactate of iron to two or three bottles of common koumiss. The iron salt easily dissolves, without changing the taste of the koumiss. This preparation is very well borne, even by patients who cannot take iron administered in pills, powders, &c.

DIARRHŒA IN INFANTS.—Dr. Lewin has found great success in the treatment of diarrhœa in young infants by giving them soluble albuminate of tannin, made by adding the white of an egg to a solution of tannin; the white of egg must be previously beaten up with some water.—*Ther. Gazette*.

MENTHOL FORMULÆ.—Messrs. Cocking & Co., of Yokohama, in a circular describing the virtues of menthol, quote various formulae for its administration. For toothache, they say, a small crystal in cotton wool, placed in a carious tooth, will give immediate relief. The greatest value of menthol, however, will be found in its great antiseptic properties and as a valuable germicide. E. Cutter, M.D., of New York, in the *Therapeutic Gazette* for June, 1883, has pointed out his experiences with it in epidemic influenza, which he maintains

is caused by a flagellate infusorium, "asthmato ciliaris." The most convenient way of administering menthol in this malady is by inhalation, and from its great volatility and pleasant, although rather pungent, odour it is a most convenient mode. Any simple form of inhaler can be used, or a simple plan is to put a few crystals in the folds of a napkin and breathe through it. For oral administration the following formula of Dr. Cutter will be found convenient:—

Menthol	5i.
Fluid extract liquorice	3ij.
Water	3ij.
Brandy	3ij.
Carbolic acid	grains xx.
Ol. sassafras	gtt. xx.

Dose, four (4) drops once in two hours.

In scarlet fever and diphtheria, typhoid fever, measles, erysipelas, &c., menthol is indicated as a germicide, and Dr. Salisbury relates a case of a lady ill with diphtheria, where the mouth and fauces were filled with patches of membrane 1 inch in diameter. The menthol was used in connection with his ordinary treatment of quinine, one grain once an hour, with great relief to the symptoms, and the entire disappearance of the membrane in twenty-four hours. In the above cases menthol can be administered by inhalation as described in connection with epidemic influenza, or in cases of diphtheria and scarlet fever by means of a gargle, according to the following formula:—

Menthol	grs. xv.
Carbolic acid	5j.
Fluid extract liquorice	3ij.
Water	3xiv.

It may be diluted with water, and used as a gargle once an hour.

In piles, rectal diseases and irritations, eczema, pruritus of genitals, fistulæ, and for all external applications the ointments made by the following formulae of Dr. Salisbury may be recommended:—

FORMULA NO. 1.

Menthol	5j.
Simple cerate	5ij.
Ol. sweet almonds	3iiss.
Pure oxide of zinc	5j.
Carbolic acid	5ss.

The above ointment can be applied to the nostrils in influenza, hay fever, and general catarrh.

FORMULA NO. 2.

Menthol	3j.
Simple cerate	5ij.
Ol. sweet almonds	3iiss.
Pure oxide of zinc	5j.
Chaulmoogra oil	3ss.
Carbolic acid	3ss.

The above ointment has been found particularly valuable in piles and rectal diseases and is suitable for all external applications. In spermatorrhœa it is very useful applied to the genitals, to quiet the irritability. It must not, however, be used too strong.

Foreign and Colonial.

GUM KAURI.—Intelligence has been received from New Caledonia that the French Government recently granted to Mr. Adolphus Oppenheimer, of Auckland, the right and monopoly for ten years to dig for and export kauri gum from New Caledonia, where he had discovered two extensive gum-fields, yielding excellent hard kauri; also several rich chrome and cobalt mines, and obtained concessions for working the same.

THE UNITED STATES CUSTOMS DEPARTMENT has decided that effervescent citrate of magnesia shall pay 25 per cent. *ad valorem* duty, regarding it as coming under the provision for "alkalies, and all combinations of any of the foregoing, and all chemical compounds and salts." The department has also decided that enfleurage pomades, which have hitherto been assessed at 50 per cent. *ad valorem*, should be charged at 20 per cent. *ad valorem*, as "manufactured articles not enumerated."

INJURY TO THE LIEBIG STATUE AT MUNICH.—On the night of November 7 some unknown person applied some corrosive fluid to the statue of Liebig at Munich and occasioned great injury, the fluid eating into the marble. The injury effected has been examined by a scientific commission, including Baeyer and Pettenkofer, and they believe that it was accomplished by a mixture of strong acids applied by a syringe. They believe that the damage done can be repaired; but they say it will be a long time before the stains can be removed. The police offer a reward of 1,000 marks for the discovery of the perpetrator of this outrage.

THE STRASBURG MURDER.—The perpetrator of the brutal assassination of a chemist's assistant at Strasburg, which we reported last month, does not seem to have been discovered. The *Pharmaceutical Zeitung* has collected for the widow of the victim over 7,000 marks from German pharmacists, and other collections having been made by the Strasburg journals and in other ways, the widow has been presented with a sum of over 33,000 marks as an indication of sympathy. In addition Mr. Reeb, the proprietor of the pharmacy where the murder took place, gave her 12,000 marks in addition to the full year's salary of his late assistant.

Trade Notes.

THE Dental Manufacturing Company (Limited) have taken extensive premises at 3, 4, and 5 Little Windmill Street, Golden Square, London, which they will use in addition to their present factory in Broad Street.

* *

MESSRS. SAMUEL LAMBERT & Co., of 137 Fenchurch Street have been appointed agents for the manufactures of Mr. Fridr. Jobst, of Stuttgart, Messrs. Burgoyne, Burbidges, Cyriax, and Farries having, by friendly arrangement, relinquished the agency.

* *

WE are pleased to notice that Messrs. Bourne, Johnson & Latimer (Bourne & Taylor), druggists' sundries men, have found it necessary, in order to carry on their increasing business with convenience, to take the warehouse adjoining their present premises, and add it to their establishment.

* *

AMONG our advertisement pages appears an announcement from Mr. J. Schweitzer, F.C.S., to the effect that he has discovered an important improvement in the manufacture of farinaceous foods, pancreatine pepsine, and pancreatic emulsion and peptons. He wishes to treat with someone who will undertake the sale and manufacture of the new preparations.

* *

WE find that, by a mishap at the printers, the name of Messrs. Spong & Co., agricultural chemists, Biggleswade, has been omitted under the two headings "Pig Powders" and "Veterinary Preparations" in the classified index to advertisements in *THE CHEMISTS' AND DRUGGISTS' Diary*, 1884. Their advertisement appears on page 82 of the Diary.

* *

LIME JUICE FROM MONTSERRAT.—The *Jane Richardson* has arrived in the Mersey from Montserrat, having on board 400 puncheons, containing about 50,000 gallons of lime juice, consigned to Messrs. Evans, Sons & Co., Hanover Street, Liverpool. This is the first consignment of the new juice to Messrs. Evans this season.—*Liverpool Journal of Commerce*, December 3, 1883.

* *

WE have received from Messrs. Evans, Lescher & Webb a copy of the printed catalogue of their exhibits at the Calcutta Exhibition lately opened. We hope to receive reports of that exhibition ere long. Meanwhile, we may say that we should expect that Messrs. Evans, Lescher & Webb's very comprehensive display, comprising, as it does, a great many specimen drugs and preparations, with full lines of Hawley's counter adjuncts, Savar's druggists' sundries, and Montserrat lime-juice preparations should have a great interest for all visitors of the pharmaceutical persuasion.

ROTHERMEL'S VINEGAR-MAKING PROCESS.—The manufacturer of this apparatus, which we mentioned last month, objects to our remark that it is for making vinegar in small quantities. He says that though the product of one apparatus is only about thirty-five gallons per week, there are several continental vinegar-makers who work with 100 and 200 apparatus.

Personalities.

THE Lord-Lieutenant of Ireland has appointed Mr. H. N. Draper, of the firm of Bcweley & Draper, wholesale druggists, Dublin, to the Commission of Peace for the city of Dublin.

THE *Medical Times and Gazette* says that Mr. Lister, the eminent surgeon of King's College Hospital, has been offered and has accepted a baronetcy.

THE *Medical Press* says a baronetcy is also to be conferred on Dr. Wm. Bowman, F.R.S., the eminent ophthalmic surgeon.

MR. JOHN WALSH's mineral-water business at Brackley has been sold to Mr. H. C. Haynes (of Bewdley) through the agency of Messrs. Taylor & Co., of 38 Walbrook, E.C.

MR. JAS. WILLIAMS' business at 6 Nugent Terrace, Abbey Road, St. John's Wood, N.W., has been disposed of (through the agency of Messrs. Taylor & Co., of 38 Walbrook, E.C.) to Mr. E. J. Wall.

MR. B. COOPER's business at Docking has been disposed of to Mr. A. C. Riding (late of Sheffield) through the agency of Messrs. Taylor & Co., of Walbrook Chambers, 38 Walbrook, E.C.

MR. C. F. PASSMORE (late of Cheltenham) has purchased (through the agency of Messrs. Taylor & Co., of 38 Walbrook, E.C.) Mr. J. H. Hackett's branch business at 96 Westborough, Scarborough.

MR. W. H. WEBB has disposed of his business at 43 Market Place, Warminster, to Mr. H. Bailey (late of Buckhurst Hill) through the agency of Messrs. Taylor & Co., of Walbrook Chambers, 38 Walbrook, E.C.

THE executors of the late Mr. W. Whincup, of 404 Essex Road, N., have disposed of the business carried on at that address to Mr. B. Richards (late of Walthamstow) through the agency of Messrs. Taylor & Co., of 38 Walbrook, E.C.

MR. PATTINSON, having taken a larger drug business in Barnard Castle, has disposed of his other business in the city of Durham to Mr. G. Cormack, his late manager. The valuation for both parties was conducted by Mr. C. B. Martin, valuer, of Barnard Castle.

MR. R. BROWN, of Spring Hill, Birmingham, has sold the retail business he has carried on for twenty years at 133 Spring Hill to Mr. F. H. Prosser, pharmaceutical chemist. Mr. Brown intends to carry on the wholesale manufacture of his furniture polish and Worcestershire sauce at Manor House, Spring Hill, opposite his old business.

BANKRUPTCIES AND LIQUIDATIONS.

WM. CHAS. CROWTHER, Tickhill.

A MEETING of the creditors of Wm. Charles Crowther, chemist, of Tickhill, was held at Doncaster on November 19, under the presidency of Mr. C. Allison, of Hull. Proofs were handed in to the amount of 1,072*l.* 16*s.* 4*d.* The statement of affairs was as follows:—Liabilities: Unsecured creditors, as per list A, 1,385*l.* 15*s.* 3*d.*; creditors fully secured, as per list B, 823*l.* 13*s.*; less estimated value of securities, 700*l.*; surplus to contra, 176*l.* 7*s.*; creditors for rent, rates, &c., 3*l.* 4*s.* 2*d.*; total, 1,388*l.* 19*s.* 5*d.* Assets: Stock-in-trade at Tickhill, 743*l.* 11*s.* 3*d.*; book debts, 514*l.* 11*s.* 1*d.*, estimated to produce 300*l.*; cash in hand, 3*l.* 4*s.* 7*d.*; furniture, fixtures, &c., 70*l.*; property, as per list G, 19*l.*; surplus from securities in hands of creditors fully secured, 176*l.* 7*s.*; total, 1,312*l.* 2*s.* 10*d.* In reply to a question, the chairman was informed that the 19*l.* spoken of as property was respecting three bicycles and two tri-

cycles in the possession of the bankrupt. The chairman expressed the opinion that 550*l.* would be forthcoming from old debts instead of 300*l.*, as mentioned in the statement of affairs. It was an excessive reduction to make. Everybody in Tickhill could pay their way, no doubt. (Laughter.) A Creditor: You cannot know much about the place. The debtor remarked that the present position of agriculture was very depressed, as all the creditors must admit. A good proportion of his debts consisted of money owed by farmers, and his solicitor had calculated that 33 per cent. was only a fair deduction to make. A creditor hinted that he knew of a customer for the business if a good offer was not forthcoming. The debtor made an offer of 12*s.* 6*d.* in the pound, and the chairman replied that he was offering the creditors 800*l.*, and reserving to himself 400*l.* Subsequently, acting on the advice of his solicitor, the debtor offered 15*s.* in the pound, payable in four instalments. It was resolved that the affairs be liquidated by arrangement, and not in bankruptcy; that Mr. R. A. Rawson, of Tickhill, be trustee; that Messrs. F. Jackson, of Bawtry, E. Allison, of Hull, H. Howarth Stiles, of Doncaster, and C. Corbridge, of Sheffield, be appointed a committee of inspection; and that Mr. N. H. Matthews, solicitor, of Tickhill, register the resolutions.



BANKRUPTS.

CHARLTON, SAMUEL, JUN., & CHARLTON, JAMES, 10 Marsden Street, Manchester, and Crabtree Aniline Works, Clayton, chemical manufacturers, November 8. Under firm of Charlton Brothers. November 26, 12½. County Court, Manchester. Registrar, Lister.

HARRISON, GEORGE, 96 Northgate, Huddersfield, chemist and druggist. November 21. December 6, 11; County Court, Huddersfield. Registrar, Jones.

JACKSON, THOMAS SCORESBY, doctor of medicine, St. Hilda's, Hoe Street, Walthamstow, and chemist and druggist, 1 Selborne Road, Walthamstow. December 11, 11½. Bankruptcy Court, London. Registrar, Brougham. Petitioning creditors, W. A. Longmore, architect and surveyor, Brighton Villa, Prospect Hill, Walthamstow, and S. Bailey, Builder, Wingfield Cottage, Wingfield Road, Walthamstow. Solicitors, Johnson, Harris & Co., 8 Old Jewry.

TRAVIS, FREDERICK, 52 Hanover Street, Liverpool, oil merchant and dry-salter. November 17. Under firm of Travis & Wilde. December 3, 12. County Court, Liverpool. Registrar, Bellringer.

LIQUIDATIONS.

BILL, FRANK, 34 Bath Street, Walsall, oil and colour merchant and hlaeking and furniture-cream manufacturer. November 28.

BLTYHER, GEORGE FRANCIS, 1 Northumberland Park, Tottenham, late chemist and wine and spirit merchant, now out of business, Church Road, Tottenham. November 10.

BORDLEY, THOMAS, 10 Fleming Square, Blackburn, wholesale drysalter, November 9.

CAMPBELL, ARCHIBALD, BULL, JOHN HIGGINS, and BUCKBY, WILLIAM CAVE HESILLIGE, Neptune Mineral-water Works, Brondesbury Villas, High Road, Kilburn, and Neptune Mineral-water Works, Queen Street, Hemd Hempstead, under firm of Campbell, Bull & Co., mineral-water manufacturers. November 15.

FELLOWS, GEORGE, Taff's Well, commission agent, chemist, and tobacconist. November 13.

FROST, ARTHUR WINTER, and CHELL, JOHN WILLIAM, 3 and 4 New Street, Oldbury, under style of Frost & Chell, drysalters. November 12.

GOODWIN, HUGH THOMAS, 23 Bridgeman Street, Walsall, chemist, druggist, dysalter, and oil and colour dealer. November 20.

HIGHMOOR, GEORGE SAMUEL, 46 Waterworks Street, Hull, chemist and druggist. November 8.

HOLDER, HENRY, 10 and 12 Trentham Street, Hulme, manufacturer of aerated waters. November 21.

JAQUES, WILLIAM, 217 and 212 Westgate Road, Newcastle, chemist and druggist. November 15.

KING, HENRY GEORGE, 31 Ball's Pond Road, Islington, trading as H. G. King & Co., wholesale druggist and dysalter. November 6.

MONTGOMERY, JAMES WALKER, Whitehaven, analytical chemist. November 17.

SELLARS, JOHN CARRINGTON, 52 Bridge Street, Birkenhead, manufacturing chemist. December 1.